ALTO SHAAM®
HALO HEAT®

ED2-48

ED2-72

ED2-96

INSTALLATION OPERATION AND MAINTENANCE MANUAL

HEATED DISPLAY CASES

FULL SERVICE OR

SELF SERVICE

EUROPEAN STYLE

SERIES:

ED2-48
ED2-72
ED2-96

W164 N9221 Water Street • P.O. Box 450 • Menomonee Falls, Wisconsin 53052-0450 USA

PHONE: 262.251.3800
800.558-8744 USA/CANADA

FAX: 262.251.7067 • 800.329.8744 U.S.A. ONLY
262.251.1907 INTERNATIONAL

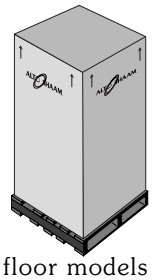
WEBSITE:
www.alto-shaam.com

PRINTED IN U.S.A.

#868 • 1/2005

ALTO-SHAAM® HEATED DISPLAY CASES

UNPACKING & SET-UP



The Alto-Shaam Heated Display Case has been thoroughly tested, checked for calibration, and inspected to insure only the highest quality unit is provided. When you receive your case, check for any possible shipping damage and report it at once to the delivering carrier. *See Transportation Damage and Claims section located in this manual.*

In order to maintain established National Sanitation Foundation standards, all stationary floor models must be sealed to the floor with a R.T.V. or silastic meeting N.S.F. requirements or have 6" (153mm) unobstructed clearance beneath the unit.

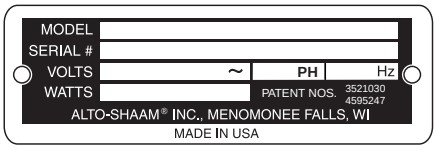
Counter and table units must be mounted on legs of a sufficient 4" (102mm) height to provide minimum unobstructed space beneath the unit. These legs are supplied with the unit. Warranty will become null and void if these directions are not followed.

Save all the information and instructions packed inside the display case. Complete and return the warranty card to the factory as soon as possible to assure prompt service in the event of a warranty parts and labor claim.

NOTE: Any and all claims for warranty must include the full model and serial number of the display case.

ELECTRICAL INSTALLATION

If necessary, permanent wiring or electrical outlets for this display case must be installed by an licensed electrician in accordance with local, country or national codes.



An identification tag is permanently mounted on case. Plug the case into a properly grounded receptacle ONLY. Arcing will occur when connecting or disconnecting the display case unless all controls are in the OFF position. Always position the appliance so the power supply cord is easily accessible in case of emergency.

ENSURE THE POWER SOURCE MATCHES THE VOLTAGE STAMPED ON CABINET NAMEPLATE

REGARDING INTERNATIONAL STANDARD UNITS:

If the unit is not equipped with flexible cord with plug, an all-pole country approved disconnection device which has a contact separation of at least 3mm in all poles must be incorporated in the fixed wiring for disconnection. When using a cord without a plug, the green/yellow conductor shall be connected to the terminal which is marked with the ground symbol. If a plug is used, the socket outlet must be easily accessible. If the power cord needs replacement, use a similar one obtained from the distributor.

For 230V units: To prevent an electrical shock hazard between the appliance and other appliances or metal parts in close vicinity, an equalization-bonding stud is provided. An equalization bonding lead must be connected to this stud and the other appliances / metal parts to provide sufficient protection against potential difference. The terminal is marked with the following symbol.

The BU2 Cart is designed to fit under the ED2 Display Cases

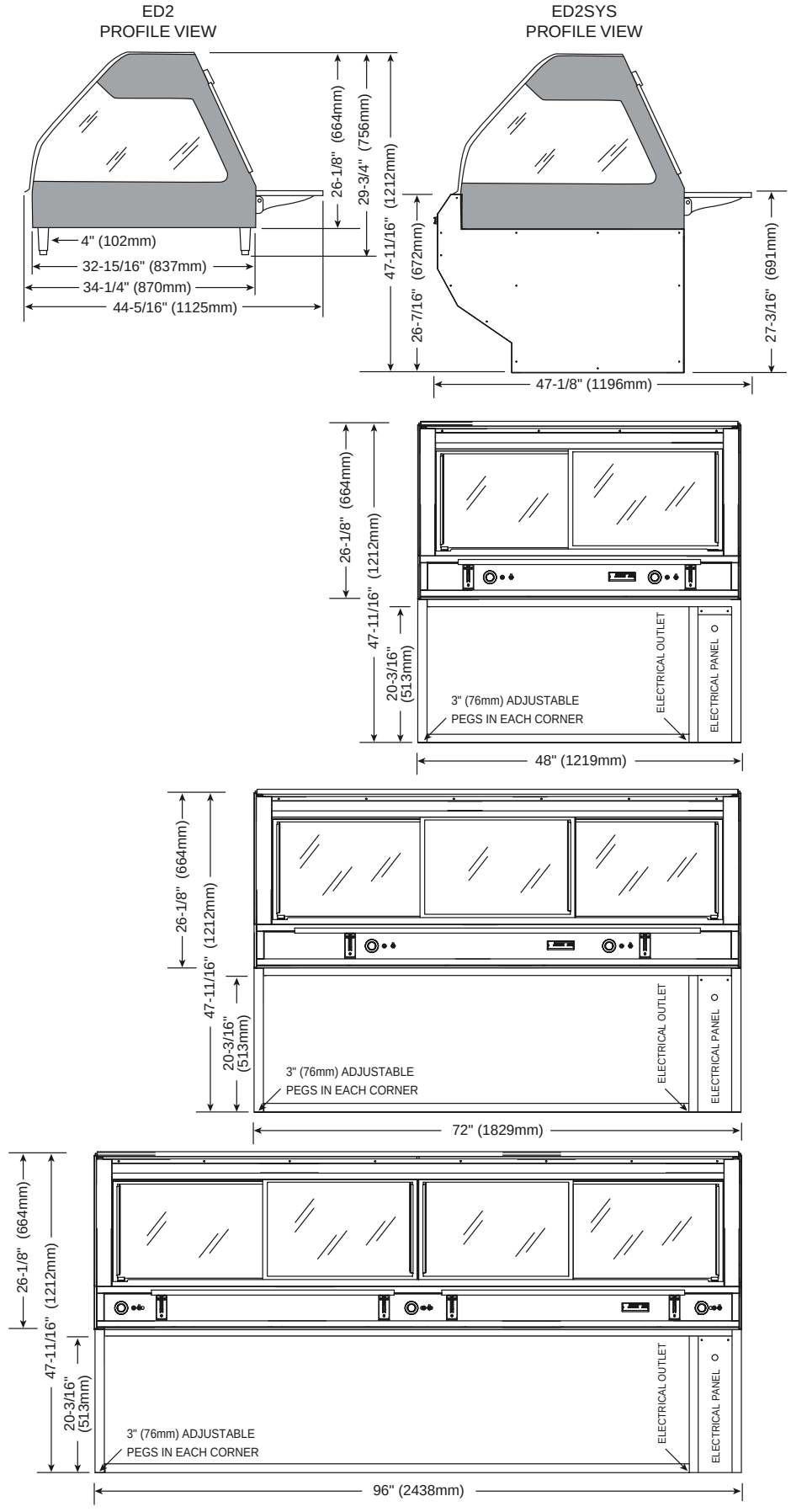
EU2SYS-48
Front View
ED2-48 on
BU2-48 Cart
with optional
casters

EU2SYS-48
Rear View
ED2-48 on
BU2-48 Cart
with shelf

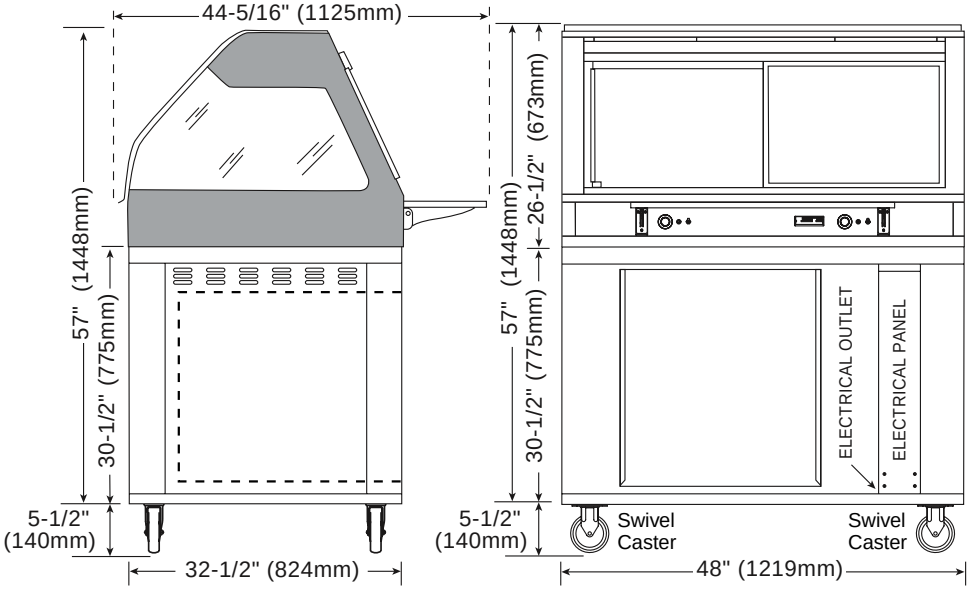
EU2SYS-48
Rear View
ED2-48 on
BU2-48 Cart
with 750-TH
cook/hold oven

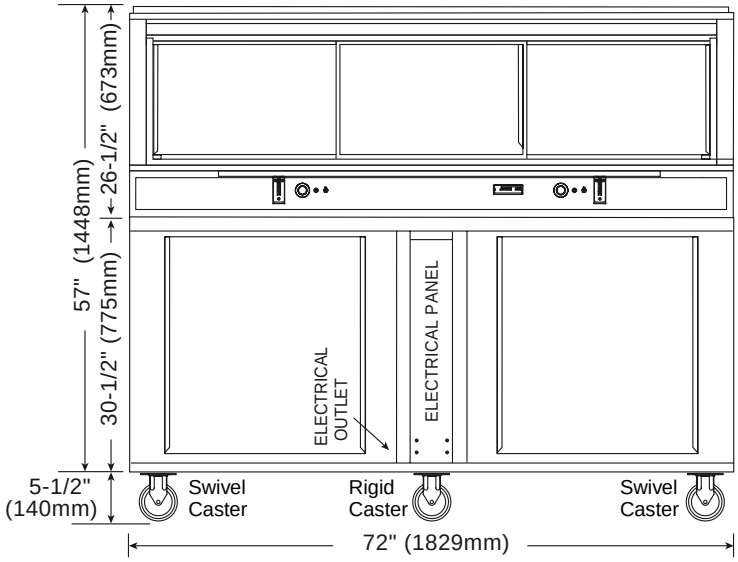
ED2SYS-48 with standard black panels

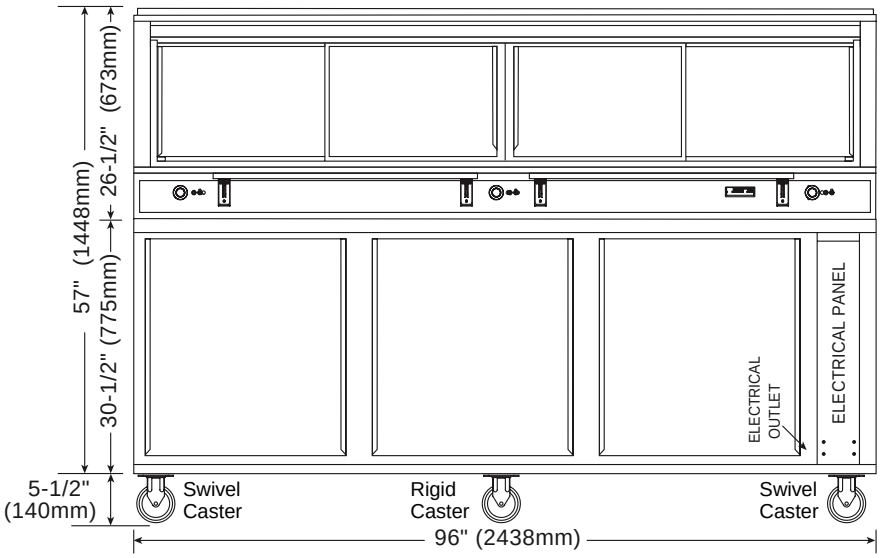
OUTSIDE DIMENSIONS - ED2SYS



OUTSIDE DIMENSIONS - EU2SYS







INSTALLATION

OPTIONS AND ACCESSORIES

DESCRIPTION		ED2-48 SERIES	ED2-72 SERIES	ED2-96 SERIES
CARVING STATION		5001874	5001874	5001874
ELECTRICAL OUTLET		5001781	5001781	5001781
FRAME TRIM KIT, STAINLESS STEEL, TOP		5001281	5001282	5001283
FRAME TRIM KIT, WHITE, TOP		5000938	5001284	5001285
GAUGE, INTERIOR AMBIENT	ED2-48, ED2-48/P	AVAILABLE	—	—
TEMPERATURE	ED2-72, ED2-72/P	—	5001144	—
	ED2-72/PL	—	5001146	—
	ED2-72/PR	—	5001145	—
	ED2-96	—	—	5001147
	ED2-96/PL	—	—	5001149
	ED2-96/PR	—	—	5001148
GLASS, TEMPERED END SPACER	FOR BUTTING MULTIPLE CASES	factory quote	factory quote	factory quote
GLASS, SOLAR COOL BRONZE END PANES		5001143	5001143	5001143
PAN, 4" DEEP SELF-SERVICE		1001990	1001991	—
PANEL, CUSTOM COLOR, BASE	ED2SYS	P154	P155	P156
	EU2SYS	P111	P112	P113
PANEL, CUSTOM COLOR, TOP		P148	P152	P153
PANEL, STAINLESS STEEL, BASE	ED2SYS	5001293	5001295	5001297
	EU2SYS	5001287	5001289	5001291
PANEL, WHITE, BASE	ED2SYS	5001292	5001294	5001296
	EU2SYS	5001286	5001288	5001290
PLATFORM, SCALE	CUSTOMER VIEW RIGHT-HAND	5001307	5001307	5001307
	CUSTOMER VIEW LEFT-HAND	5001308	5001308	5001308
SHEET PAN, DIVIDER BAR PACKAGE	ED2-48, ED2-48/P	5002802	—	—
	ED2-72, ED2-72/P	—	5002803	—
	ED2-72/PL/PR	—	5002804	—
	ED2-96	—	—	5002805
	ED2-96/PL/PR	—	—	5002806
SHELF, STAINLESS STEEL	EU2SYS	5001430	5001430	5001430

ED2-48 Heated Display Case with optional carving station and interior temperature gauge

OPERATING PROCEDURES

1. DO NOT ADD WATER TO DISPLAY CASE

Halo Heat display cases maintain a constant but gentle temperature and eliminate much of the moisture loss associated with conventional display cases. Because of this gentle heat, it is not necessary to add water to the display case. As a matter of fact, **adding water is not recommended** since water will accelerate the deterioration of the product, and may damage the unit voiding the warranty.

2. PLACE DIVIDERS AND SERVING PANS IN CASE

Refer to the pan layout diagrams for different types of pan accommodations. A complete pan configuration layout is located in this manual. **It is VERY important to note,** no matter what type of pan configuration chosen, pan separator bars or divider bars must be used to close all gaps between pans, and all gaps between the pans and the edges of the display case. If these gaps are not closed, heat will escape from the bottom of the case into the display area. As a consequence, heat distribution will be uneven and uniform temperature will be difficult to hold. If needed, additional pan divider bars are available. The supplied self-serve pan inserts with wire grids are for use with pre-packaged foods in the self-serve sections of the units.

3. TURN DISPLAY LIGHTS "ON" AND SET THE THERMOSTAT(S) AT NUMBER "10" TO PREHEAT

A indicator light will illuminate when the thermostat(s) is (are) turned "**ON**." The indicator(s) will remain lit as long as the unit is preheating or calling for heat. The unit should be preheated at the **10** setting for a minimum of 30-45 minutes before loading the case with hot food. When preheating is completed, or whenever the unit reaches any temperature set by the operator between **1** and **10**, the indicator light(s) will go "**OUT**".

4. LOAD HOT FOODS INTO DISPLAY CASE

Be certain only hot food is transferred into the display case. Before loading food into the case, use a pocket-type meat thermometer to make certain all products have reached an internal temperature of 140° to 160° F (60° to 71°C). If any food product is not at proper serving temperature, use a Halo Heat cooking and holding oven, set at 250° to 275°F (121° to 135°C), or a Combitherm oven to bring the product within the correct temperature range.

- Use hand protection when handling hot items.
- Be certain only hot PREPACKAGED foods in appropriate heat tested containers are used in the self-service section of the display case.
- Do not stack food containers.

5. RESET THERMOSTAT(S) AS NEEDED

After all products are loaded into the display case and the doors are closed, it is necessary to reset the thermostat(s). For fully enclosed sections, reset the thermostat to the number "8" setting. Cases with a self-service section should be maintained between number "9" and number "10" for the self-service section **only**. THESE SETTINGS WILL NOT NECESSARILY BE FINAL. Since proper temperature range depends on the type of products and the quantities being held, it is necessary to periodically use a pocket thermometer to check each item to make certain the correct temperatures are being maintained. Proper temperature range is between a minimum of 140° and 160° F (60° and 71° C). Normally, this will require a thermostat setting of between number "6" and "8" in fully enclosed cases. Self-service cases or sections will always require a higher thermostat setting.

6. PLACEMENT OF FOOD PROBE

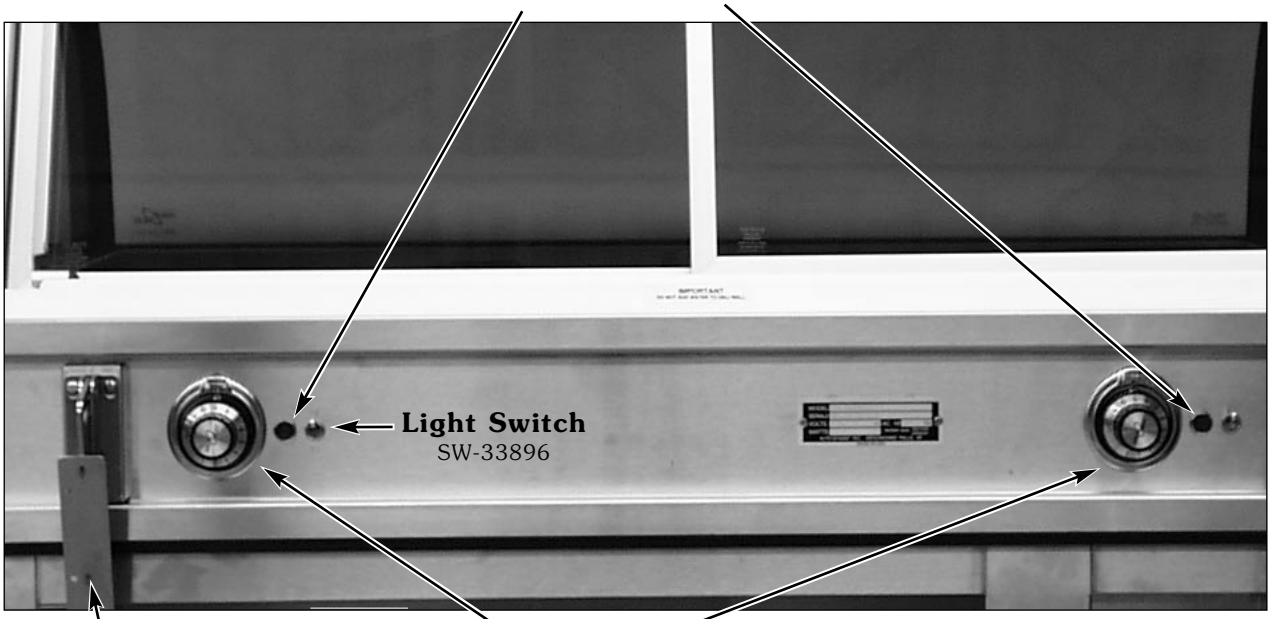
If the unit is equipped with the probe accessory, wipe each probe and probe tip with a disposable alcohol pad to clean and sanitize before using. If the probe is left in its bracket, the LED temperature display will indicate the ambient air temperature inside the case. To place a probe into food kept in the case, remove the probe from the bracket and push the probe tip halfway into the product, positioning the tip at the center of the food mass. If placing into solid foods such as meat roast or poultry breasts, push the probe in from a straight downward position or in from the side to the center position. If placing into a semi-liquid or liquid product, the probe cable will probably need to be secured to keep the probe positioned properly. Do not let the probe tip touch the edges or sides. Tape the probe cable to the lip or edge of the container. Wipe each probe tip with a clean paper towel to remove food debris after each use. Follow by wiping probes with a disposable alcohol pad, and return each probe to the proper bracket position.

7. SERVE FRESH HOT FOOD

Keep hot foods looking fresh. Occasionally stir or rotate food as needed. Serve food products in appropriate heat tested packages or containers. Keep display case doors closed after serving. Wipe spills immediately to assure maximum eye appeal and to ease end of the day cleanup.

ED2 Series Controls

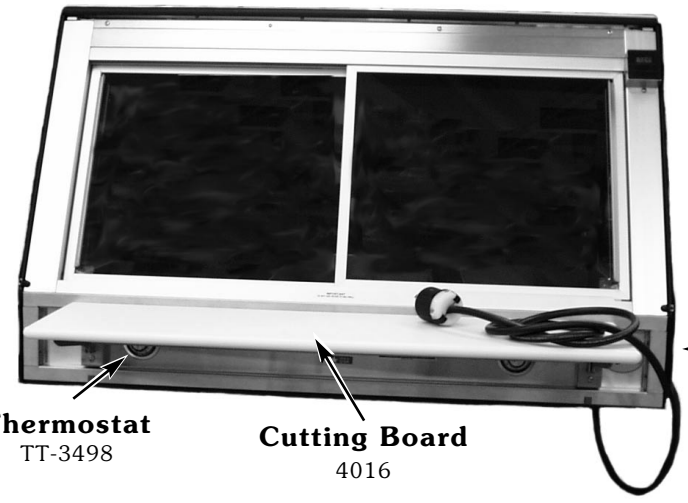
Indicator Lights
LI-3025 (120V/208-240V)
LI-3951 (230V)



Cutting Board Bracket
BT-2342

Thermostats
TT-3498

Operator/Control side with cutting board



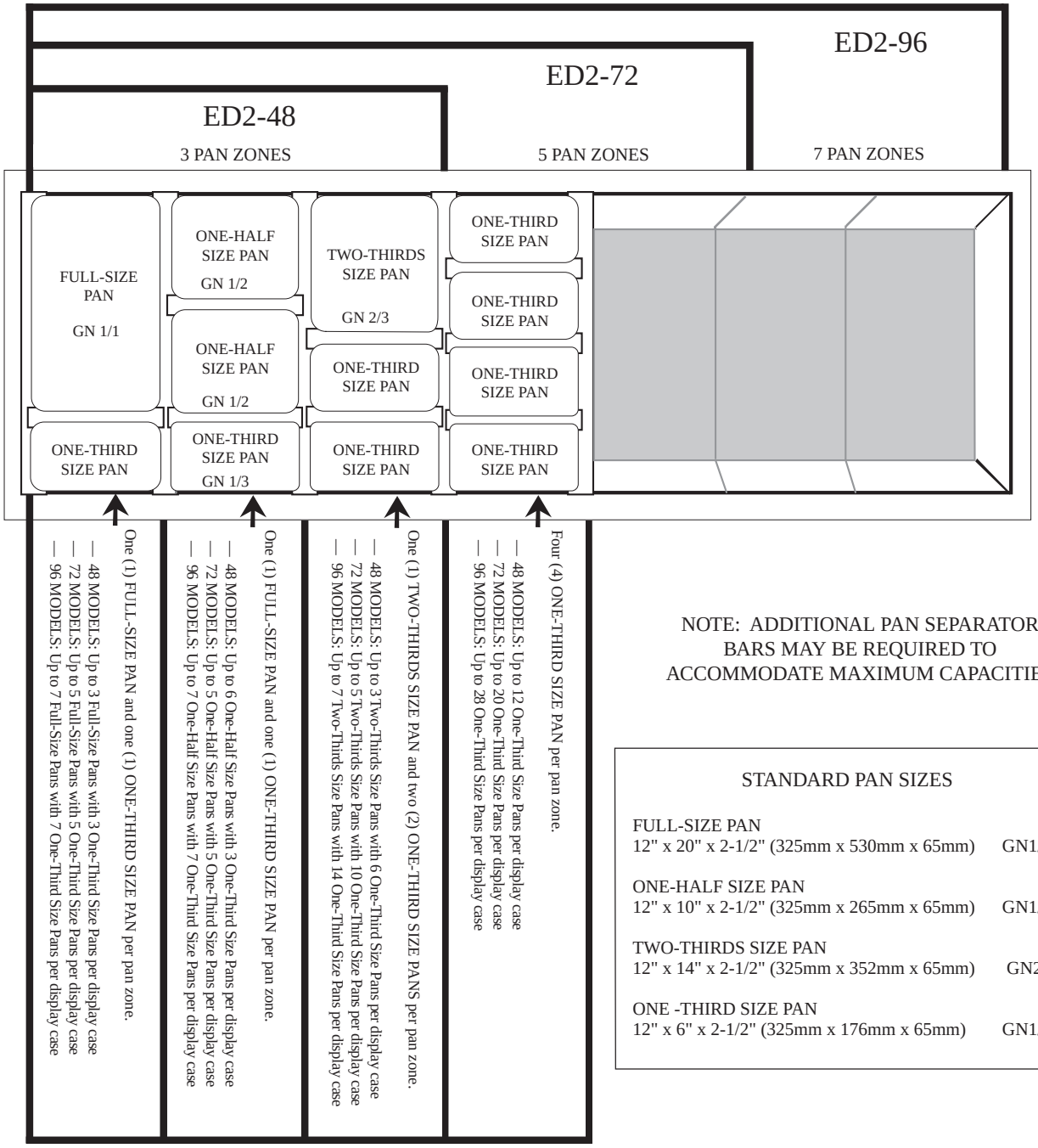
Thermostat
TT-3498

Cutting Board
4016

Electrical Cord
CD-33490 (230V)
CD-3291 (120/208-240V)

Plug
PG-3267
(COUNTERTOP UNITS, 120/208-240V ONLY)

PAN CONFIGURATIONS • HEATED DISPLAY CASES


ED2-96
ED2-72
ED2-48
3 PAN ZONES
5 PAN ZONES
7 PAN ZONES
FULL-SIZE PAN GN 1/1
ONE-HALF SIZE PAN GN 1/2
ONE-HALF SIZE PAN GN 1/2
ONE-THIRD SIZE PAN GN 1/3
TWO-THIRDS SIZE PAN GN 2/3
ONE-THIRD SIZE PAN
ONE-THIRD SIZE PAN
ONE-THIRD SIZE PAN
ONE-THIRD SIZE PAN
ONE-THIRD SIZE PAN
ONE-THIRD SIZE PAN
ONE-THIRD SIZE PAN
ONE-THIRD SIZE PAN
One (1) FULL-SIZE PAN and one (1) ONE-THIRD SIZE PAN per pan zone.
— 48 MODELS: Up to 3 Full-Size Pans with 3 One-Third Size Pans per display case
— 72 MODELS: Up to 5 Full-Size Pans with 5 One-Third Size Pans per display case
— 96 MODELS: Up to 7 Full-Size Pans with 7 One-Third Size Pans per display case
One (1) FULL-SIZE PAN and one (1) ONE-THIRD SIZE PAN per pan zone.
— 48 MODELS: Up to 6 One-Half Size Pans with 3 One-Third Size Pans per display case
— 72 MODELS: Up to 5 One-Half Size Pans with 5 One-Third Size Pans per display case
— 96 MODELS: Up to 7 One-Half Size Pans with 7 One-Third Size Pans per display case
One (1) TWO-THIRDS SIZE PAN and two (2) ONE-THIRD SIZE PANS per pan zone.
— 48 MODELS: Up to 3 Two-Thirds Size Pans with 6 One-Third Size Pans per display case
— 72 MODELS: Up to 5 Two-Thirds Size Pans with 10 One-Third Size Pans per display case
— 96 MODELS: Up to 7 Two-Thirds Size Pans with 14 One-Third Size Pans per display case
Four (4) ONE-THIRD SIZE PAN per pan zone.
— 48 MODELS: Up to 12 One-Third Size Pans per display case
— 72 MODELS: Up to 20 One-Third Size Pans per display case
— 96 MODELS: Up to 28 One-Third Size Pans per display case

NOTE: ADDITIONAL PAN SEPARATOR BARS MAY BE REQUIRED TO ACCOMMODATE MAXIMUM CAPACITIES.

STANDARD PAN SIZES

FULL-SIZE PAN
12" x 20" x 2-1/2" (325mm x 530mm x 65mm) GN1/1

ONE-HALF SIZE PAN
12" x 10" x 2-1/2" (325mm x 265mm x 65mm) GN1/2

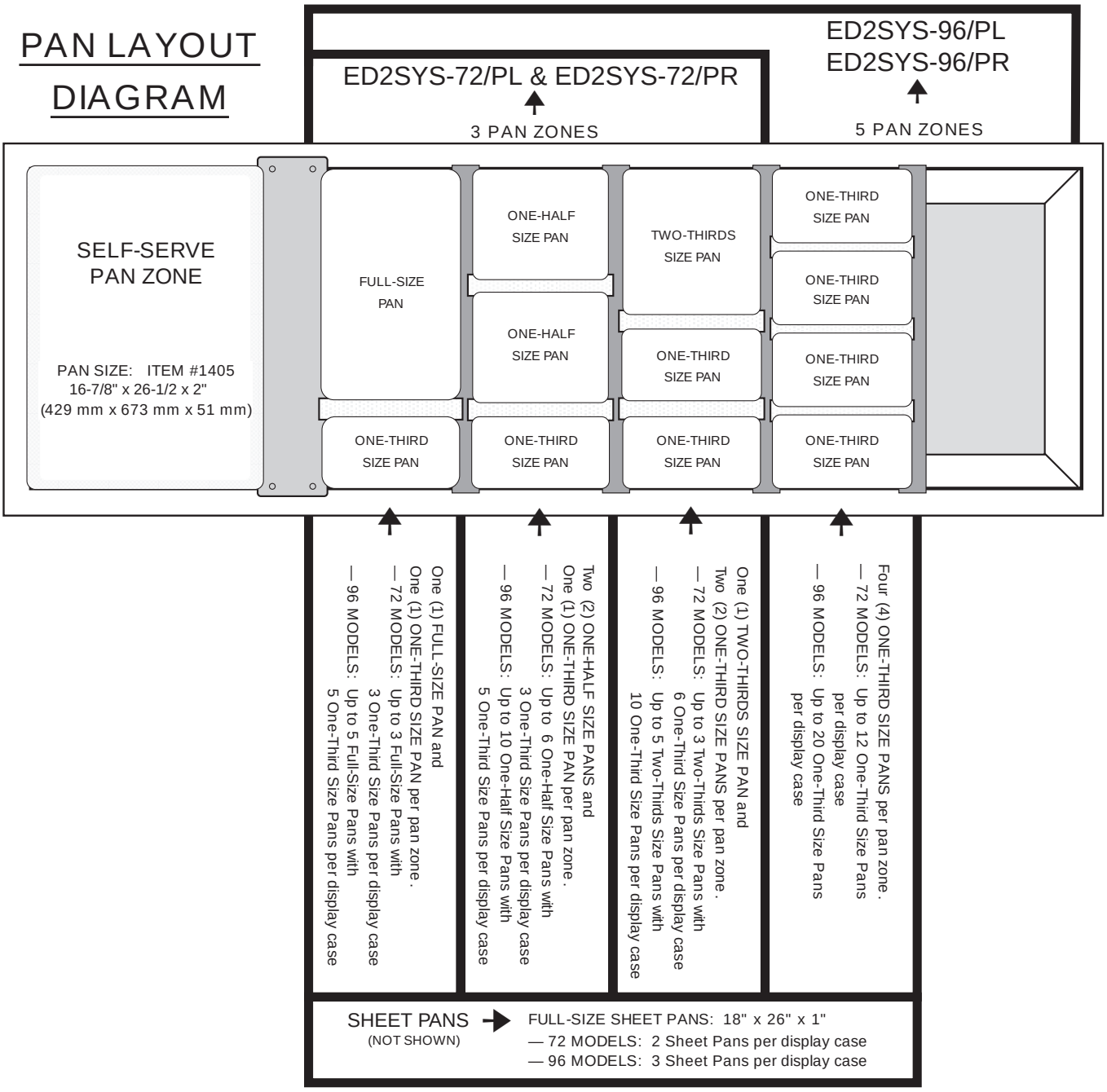
TWO-THIRDS SIZE PAN
12" x 14" x 2-1/2" (325mm x 352mm x 65mm) GN2/3

ONE -THIRD SIZE PAN
12" x 6" x 2-1/2" (325mm x 176mm x 65mm) GN1/3

STANDARD PAN DIVIDER and SEPARATOR BARS

NO.	DESCRIPTION	DIMENSIONS		MODELS 48	72	96
11047	ONE-THIRD SIZE PAN	3-1/4" x 7"	(83mm x 178mm)	1	—	—
1002584	FULL, HALF AND THIRD SIZE-LONG	3-11/16" x 28"	(93mm x 711mm)	4	4	—
1002590	FULL, HALF AND THIRD SIZE-LONG	3" x 28"	(76mm x 711mm)	—	—	6
11318	FULL, HALF AND THIRD SIZE-SHORT	1" x 12-3/4"	(25mm x 324mm)	9	15	21
1002621	FULL, HALF AND THIRD SIZE-SHORT	2-7/16" x 12-3/4"	(62mm x 324mm)	3	5	7

PAN CONFIGURATIONS • SELF-SERVE HOT DISPLAY CASES

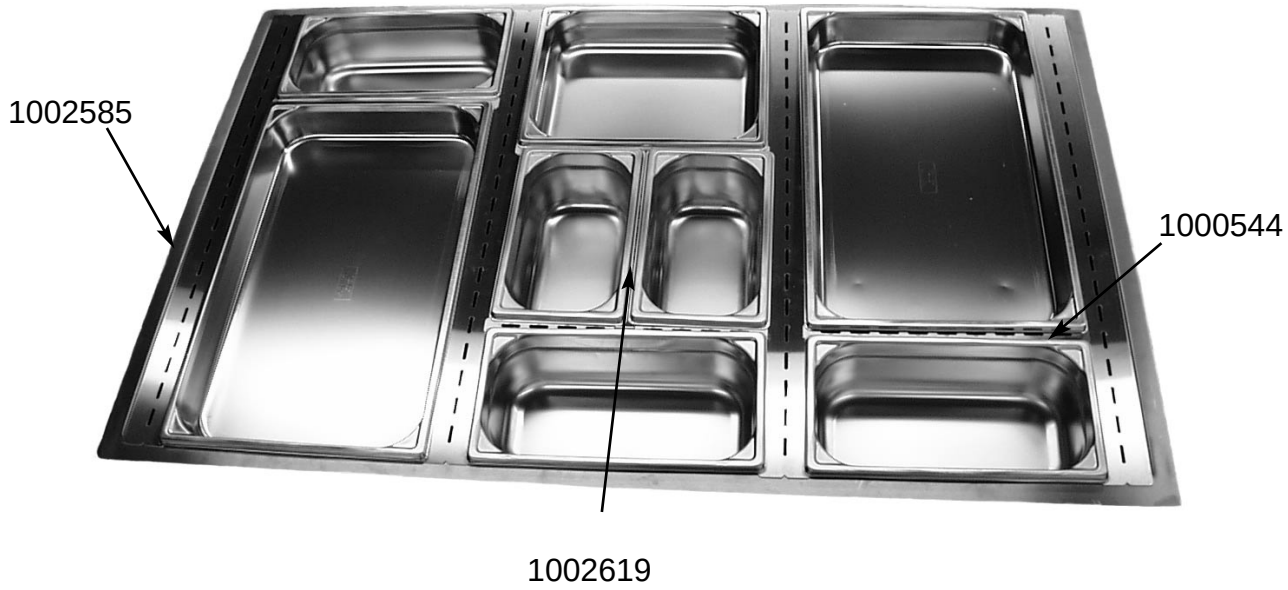

PAN LAYOUT DIAGRAM
ED2SYS-72/PL & ED2SYS-72/PR
3 PAN ZONES
ED2SYS-96/PL
ED2SYS-96/PR
5 PAN ZONES
SELF-SERVE PAN ZONE
PAN SIZE: ITEM #1405
16-7/8" x 26-1/2 x 2"
(429 mm x 673 mm x 51 mm)
FULL-SIZE PAN
ONE-HALF SIZE PAN
ONE-HALF SIZE PAN
TWO-THIRDS SIZE PAN
ONE-THIRD SIZE PAN
ONE-THIRD SIZE PAN
ONE-THIRD SIZE PAN
ONE-THIRD SIZE PAN
ONE-THIRD SIZE PAN
ONE-THIRD SIZE PAN
ONE-THIRD SIZE PAN
ONE-THIRD SIZE PAN
One (1) FULL-SIZE PAN and One (1) ONE-THIRD SIZE PAN per pan zone.
— 72 MODELS: Up to 3 Full-Size Pans with 3 One-Third Size Pans per display case
— 96 MODELS: Up to 5 Full-Size Pans with 5 One-Third Size Pans per display case
Two (2) ONE-HALF SIZE PANS and One (1) ONE-THIRD SIZE PAN per pan zone.
— 72 MODELS: Up to 6 One-Half Size Pans with 3 One-Third Size Pans per display case
— 96 MODELS: Up to 10 One-Half Size Pans with 5 One-Third Size Pans per display case
One (1) TWO-THIRDS SIZE PAN and Two (2) ONE-THIRD SIZE PANS per pan zone.
— 72 MODELS: Up to 3 Two-Thirds Size Pans with 6 One-Third Size Pans per display case
— 96 MODELS: Up to 5 Two-Thirds Size Pans with 10 One-Third Size Pans per display case
Four (4) ONE-THIRD SIZE PANS per pan zone.
— 72 MODELS: Up to 12 One-Third Size Pans per display case
— 96 MODELS: Up to 20 One-Third Size Pans per display case
SHEET PANS
(NOT SHOWN)
FULL-SIZE SHEET PANS: 18" x 26" x 1"
— 72 MODELS: 2 Sheet Pans per display case
— 96 MODELS: 3 Sheet Pans per display case

STANDARD PAN SIZES

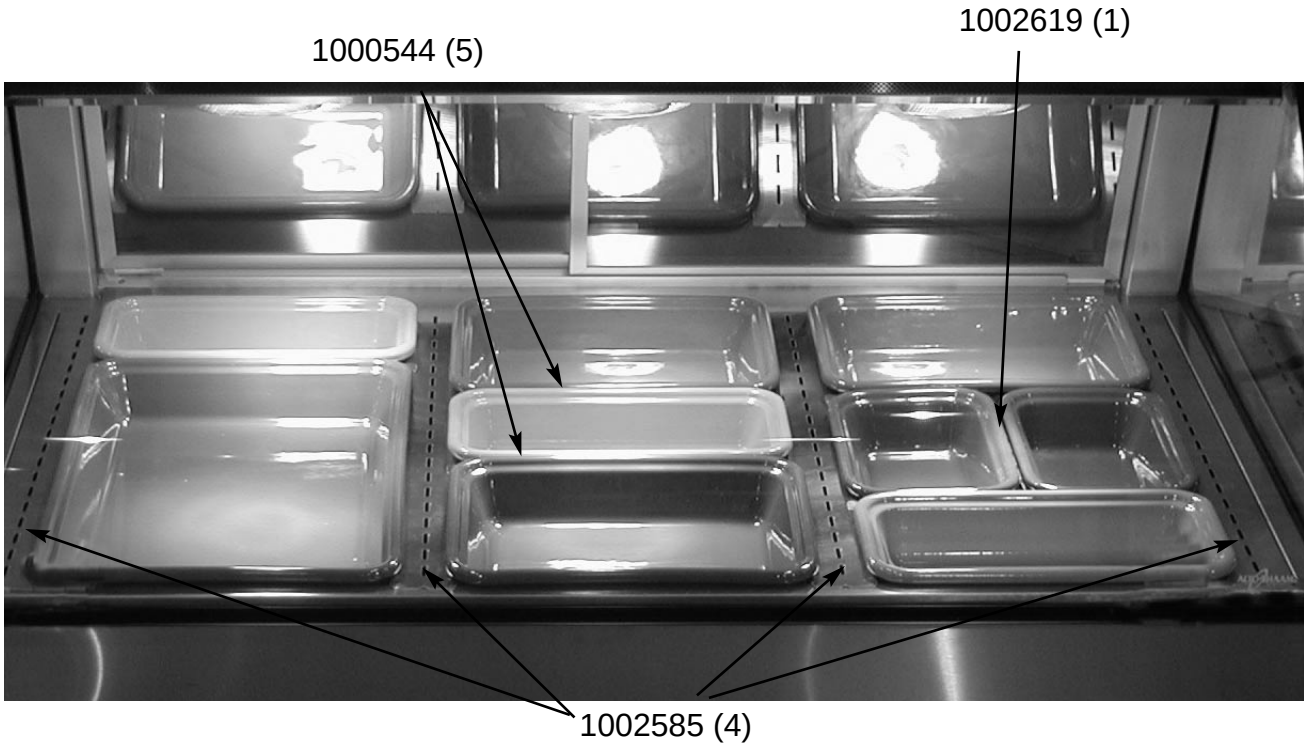
FULL-SIZE PAN	GN 1/1
12" x 20" x 2-1/2"	325 mm x 530 mm x 65 mm
ONE-HALF SIZE PAN	GN 1/2
12" x 10" x 2-1/2"	325 mm x 265 mm x 65 mm
TWO-THIRDS SIZE PAN	GN 2/3
12" x 14" x 2-1/2"	325 mm x 352 mm x 65 mm
ONE-THIRD SIZE PAN	GN 1/3
12" x 6" x 2-1/2"	325 mm x 176 mm x 65 mm
FULL-SIZE SHEET PAN	N/A
18" x 26" x 1"	457 mm x 660 mm x 25,4 mm

STANDARD PAN DIVIDER & SEPARATOR BARS

Item No.	Description	Dimensions (W x L)		Models 72	Models 96
11047	ONE-THIRD SIZE PAN	3-1/4" x 7"	(83 mm x 178 mm)	—	—
1002584	FULL, HALF & THIRD SIZE-LONG	3-11/16" x 28"	(93 mm x 711 mm)	4	—
1002590	FULL, HALF & THIRD SIZE-LONG	3" x 28"	(76 mm x 711 mm)	—	6
1002621	FULL, HALF & THIRD SIZE-SHORT	2-7/16" x 12-3/4"	(62 mm x 324 mm)	5	7
11318	FULL, HALF & THIRD SIZE-SHORT	1" x 12-3/4"	(25 mm x 324 mm)	15	21



Part No.	International pan divider and separator bars		Models		
			48	72	96
1002585	GN 1/1, GN 1/2, GN 1/3 - Long	93 mm x 711 mm	4	4	-
1002591	GN 1/1, GN 1/2, GN 1/3 - Long	76 mm x 711 mm	-	-	6
1002619	GN 1/4	50 mm x 283 mm	6	10	14
1000544	GN 1/1, GN 1/2, GN 1/3 - Short	50 mm x 610 mm	9	15	21



GENERAL HOLDING GUIDELINES

Chefs, cooks and other specialized food service personnel employ varied methods of cooking. Proper holding temperatures for a specific food product must be based on the moisture content of the product, product density, volume, and proper serving temperatures. Safe holding temperatures must also be correlated with palatability in determining the length of holding time for a specific product.

Halo Heat maintains the maximum amount of product moisture content without the addition of water, water vapor, or steam. Maintaining maximum natural product moisture preserves the natural flavor of the product and provides a more genuine taste. In addition to product moisture retention, the gentle properties of Halo Heat maintain a consistent temperature throughout the cabinet without the necessity of a heat distribution fan, thereby preventing further moisture loss due to evaporation or dehydration.

In an enclosed holding environment, too much moisture content is a condition which can be relieved. A product achieving extremely high temperatures in preparation must be allowed to decrease in temperature before being placed in a controlled holding atmosphere. If the product is not allowed to decrease in temperature, excessive condensation will form increasing the moisture content on the outside of the product.

Most Halo Heat Holding Equipment is provided with a thermostat control between 60° and 200°F (16° to 93°C). If the unit is equipped with vents, close the vents for moist holding and open the vents for crisp holding.

If the unit is equipped with a thermostat indicating a range of between 1 and 10, use a metal-stemmed indicating thermometer to measure the internal temperature of the product(s) being held. Adjust the thermostat setting to achieve the best overall setting based on internal product temperature.

HOLDING TEMPERATURE RANGE

MEAT	FAHRENHEIT	CELSIUS
BEEF ROAST — Rare	140°F	60°C
BEEF ROAST — Med/Well Done	160°F	71°C
BEEF BRISKET	160° — 175°F	71° — 79°C
CORN BEEF	160° — 175°F	71° — 79°C
PASTRAMI	160° — 175°F	71° — 79°C
PRIME RIB — Rare	140°F	60°C
STEAKS — Broiled/Fried	140° — 160°F	60° — 71°C
RIBS — Beef or Pork	160°F	71°C
VEAL	160° — 175°F	71° — 79°C
HAM	160° — 175°F	71° — 79°C
PORK	160° — 175°F	71° — 79°C
LAMB	160° — 175°F	71° — 79°C
POULTRY		
CHICKEN — Fried/Baked	160° — 175°F	71° — 79°C
DUCK	160° — 175°F	71° — 79°C
TURKEY	160° — 175°F	71° — 79°C
GENERAL	160° — 175°F	71° — 79°C
FISH/SEAFOOD		
FISH — Baked/Fried	160° — 175°F	71° — 79°C
LOBSTER	160° — 175°F	71° — 79°C
SHRIMP — Fried	160° — 175°F	71° — 79°C
BAKED GOODS		
BREADS/ROLLS	120° — 140°F	49° — 60°C
MISCELLANEOUS		
CASSEROLES	160° — 175°F	71° — 79°C
DOUGH — Proofing	80° — 100°F	27° — 38°C
EGGS —Fried	150° — 160°F	66° — 71°C
FROZEN ENTREES	160° — 175°F	71° — 79°C
HORS D'OEUVRES	160° — 180°F	71° — 82°C
PASTA	160° — 180°F	71° — 82°C
PIZZA	160° — 180°F	71° — 82°C
POTATOES	180°F	82°C
PLATED MEALS	180°F	82°C
SAUCES	140° — 200°F	60° — 93°C
SOUP	140° — 200°F	60° — 93°C
VEGETABLES	160° — 175°F	71° — 79°C

THE HOLDING TEMPERATURES LISTED ARE SUGGESTED GUIDELINES.

CARE AND CLEANING

The cleanliness and appearance of this equipment will contribute considerably to operating efficiency and savory, appetizing food. Good equipment that is kept clean works better and lasts longer.

1. CLEAN THE PROBES DAILY

If the display case is supplied with probes, remove all food soil from probes. Wipe entire probe and cable assembly with warm detergent solution and a clean cloth. Remove detergent by wiping each probe and cable with clean rinse water and a cloth. Wipe probes with disposable alcohol pad or sanitizing solution recommended for food contact surfaces. Allow probe and cable to air dry in probe holding bracket.

2. THOROUGHLY CLEAN THE UNIT DAILY

A. Turn lights and adjustable thermostat(s) to the "OFF" position, and disconnect unit from power source.

B. Remove, cover or wrap, and store unused products under refrigeration.

C. Clean the interior metal surfaces of the cabinet with a damp clean cloth and any good commercial detergent or grease solvent at the recommended strength. Use a plastic scouring pad or oven cleaner for difficult areas. Rinse well to remove all residue and wipe dry.

NOTE: Avoid the use of abrasive cleaning compounds, chloride based cleaners, or cleaners containing quaternary salts. Never use hydrochloric acid (muriatic acid) on stainless steel.

D. Clean the glass with a window cleaner. The sliding glass doors are removable allowing for easier cleaning.

E. To help maintain the protective film coating on polished stainless steel, clean the exterior of the unit with a cleaner recommended for stainless steel surfaces. Spray the cleaning agent on a clean cloth and wipe with the grain of the stainless steel.

Always follow appropriate state or local health (hygiene) regulations regarding all applicable cleaning and sanitation requirements for equipment.

DO NOT USE IF CONTROLS ARE NOT PROPERLY FUNCTIONING

Refer to the Trouble Shooting Guide located in this manual or call an authorized service technician.

CHECK OVERALL CONDITION ONCE A MONTH

Check the case and related cabinets once a month for physical damage and loose screws. Correct any problems before they begin to interfere with the operation of the unit.

AT NO TIME SHOULD THE INSIDE OR THE OUTSIDE OF THE OVEN BE WASHED DOWN, FLOODED WITH WATER, OR LIQUID SOLUTION. DO NOT USE WATER JET TO CLEAN. NEVER STEAM CLEAN.

CAUTION

SEVERE DAMAGE OR ELECTRICAL HAZARD COULD RESULT.

WARRANTY BECOMES VOID IF CABINET IS FLOODED.

SAFETY ALERT

CAUTION

This units performance has been optimized using the factory provided bulbs. These bulbs should be replaced with an exact replacement or with a factory recommended replacement. These bulbs have been treated to resist breakage and must be replaced with similarly treated bulbs in order to maintain compliance with NSF standards. Do not over-tighten bulbs in their receptacles as this can cause damage to the bulb filament.

CAUTION

CAUTION

Hood glass extended to the full upright position is stabilized through the use of gas struts designed for the full load bearing weight. These struts could weaken or fail due to wear, environmental conditions or aging.

Operators should be aware of any decrease in effort to lift the hood and initiate an immediate gas strut safety check.

DO NOT LIFT THE HOOD IN THIS CONDITION.

SANITATION GUIDELINES

Food flavor and aroma are usually so closely related that it is difficult, if not impossible, to separate them. There is also an important, inseparable relationship between cleanliness and food flavor. Cleanliness, top operating efficiency, and appearance of equipment contribute considerably to savory, appetizing foods. Good equipment that is kept clean, works better and lasts longer.

Most food imparts its own particular aroma and many foods also absorb existing odors. Unfortunately, during this absorption, there is no distinction between *GOOD* and *BAD* odors. The majority of objectionable flavors and odors troubling food service operations are caused by bacteria growth. Sourness, rancidity, mustiness, stale or other *OFF* flavors are usually the result of germ activity.

The easiest way to insure full, natural food flavor is through comprehensive cleanliness. This means good control of both visible soil (dirt) and invisible soil (germs). A thorough approach to sanitation will provide essential cleanliness. It will assure an attractive appearance of equipment, along with maximum efficiency and utility. More importantly, a good sanitation program provides one of the key elements in the prevention of food-borne illnesses.

A controlled holding environment for prepared foods is just one of the important factors involved in the prevention of food-borne illnesses. Temperature monitoring and control during receiving, storage, preparation, and the service of foods are of equal importance.

INTERNAL FOOD PRODUCT TEMPERATURES		
HOT FOODS		
DANGER ZONE	40° TO 140°F	(4° TO 60°C)
CRITICAL ZONE	70° TO 120°F	(21° TO 49°C)
SAFE ZONE	140° TO 165°F	(60° TO 74°C)
COLD FOODS		
DANGER ZONE	ABOVE 40°F	(ABOVE 4°C)
SAFE ZONE	36°F TO 40°F	(2°C TO 4°C)
FROZEN FOODS		
DANGER ZONE	ABOVE 32°F	(ABOVE 0°C)
CRITICAL ZONE	0° TO 32°F	(-18° TO 0°C)
SAFE ZONE	0°F OR BELOW	(-18°C OR BELOW)

The most accurate method of measuring safe temperatures of both hot and cold foods is by internal product temperature. A quality thermometer is an effective tool for this purpose, and should be routinely used on all products that require holding at a specific temperature.

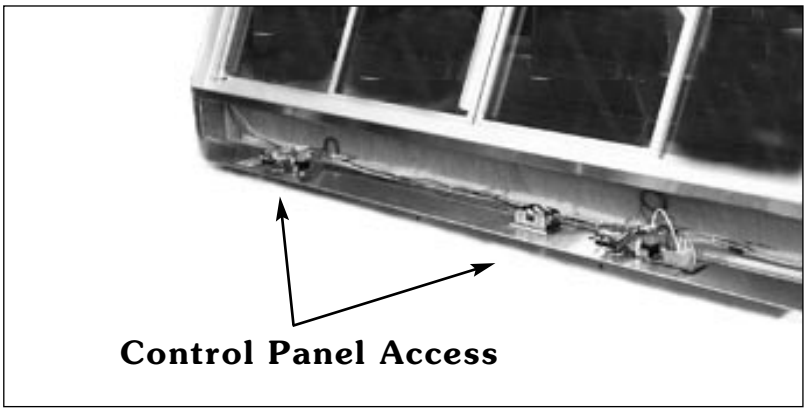
A comprehensive sanitation program should focus on the training of staff in basic sanitation procedures. This includes personal hygiene, proper handling of raw foods, cooking to a safe internal product temperature, and the routine monitoring of internal temperatures from receiving through service.

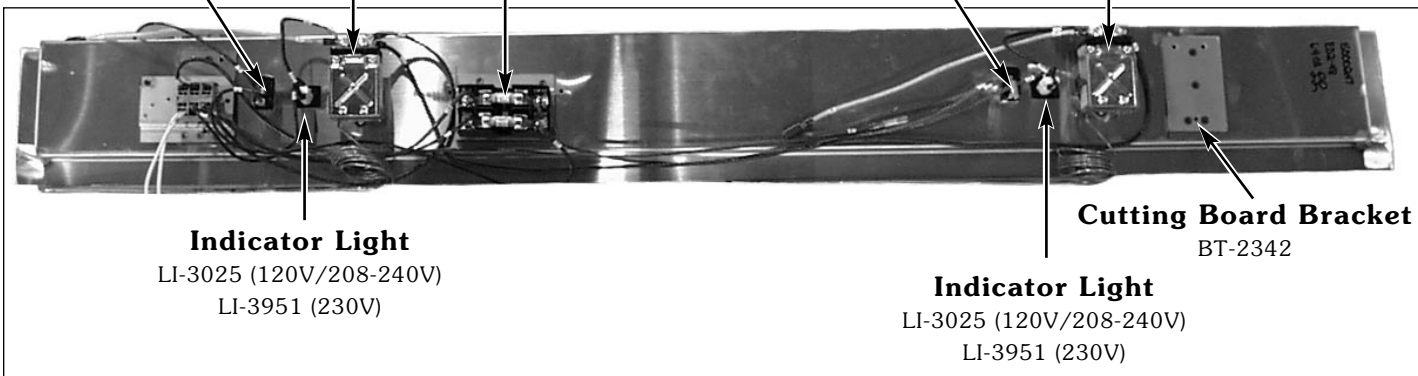
Most food-borne illnesses can be prevented through proper temperature control and a comprehensive program of sanitation. Both these factors are important to build quality service as the foundation of customer satisfaction. Safe food handling practices to prevent food-borne illness is of critical importance to the health and safety of your customers.

HACCP, an acronym for Hazard Analysis (at) Critical Control Points, is a quality control program of operating procedures to assure food integrity, quality, and safety. Taking steps necessary to augment food safety practices are both cost effective and relatively simple. While HACCP guidelines go far beyond the scope of this manual, additional information is available by contacting:

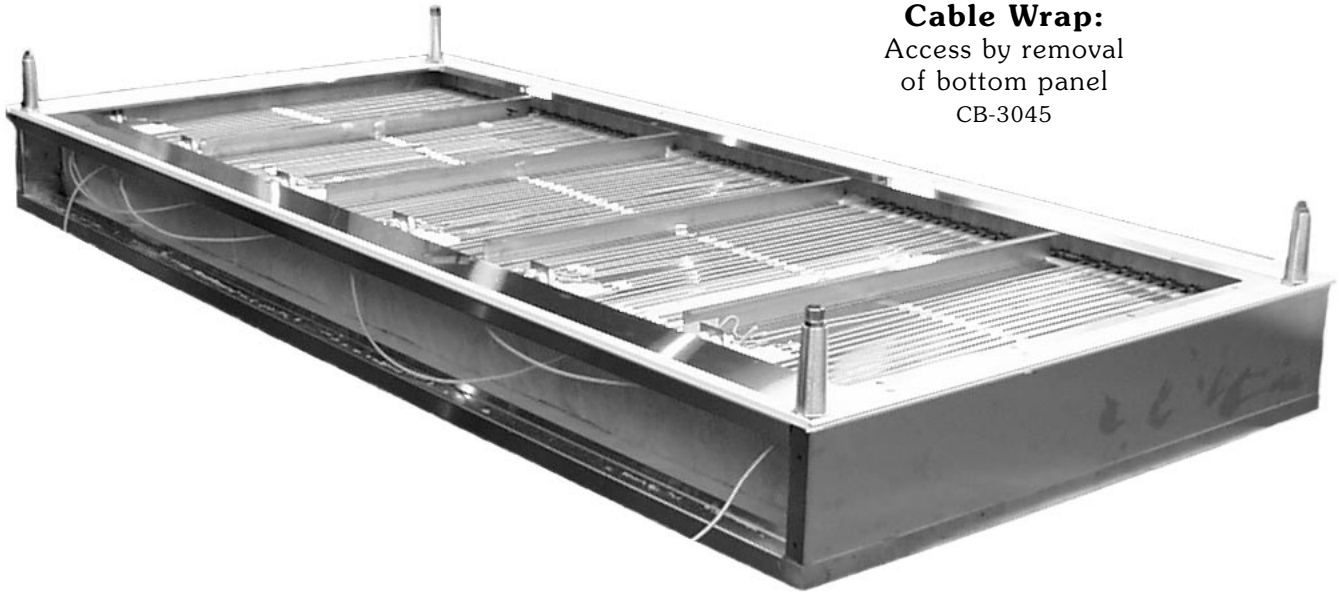
Center for Food Safety and Applied Nutrition
Food and Drug Administration
1-888-SAFEFOOD.

ED2 Series - Service Views





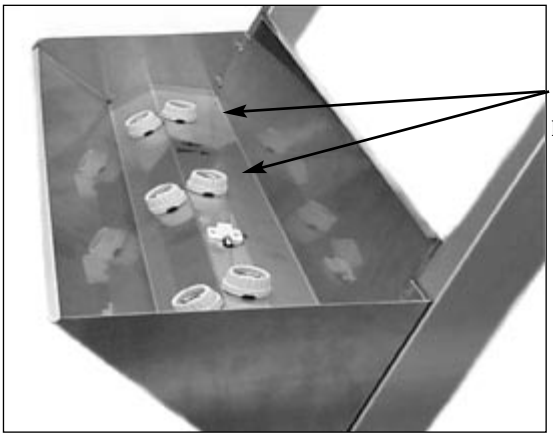
Control Panel for Model ED2-48



Cable Wrap:
Access by removal
of bottom panel
CB-3045

ED2 Series - Service Views

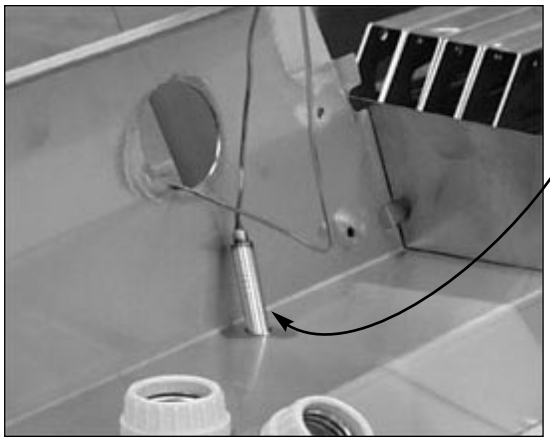
Inside the top - lights
LP-3384 (230V)
LP-33592 (120/208-240V)



Bulb Receptacles
RP-3955 (230V)
RP-3952 (120/208-240V)

Manual Temperature Gauge (OPTION)

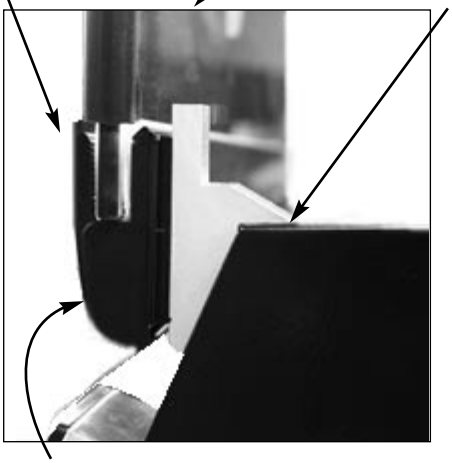
5001144 (ED2-72, -72/P)
5001145 (ED2-72/PR)
5001146 (ED2-72/PL)
5001147 (ED2-96)
5001148 (ED2-96/PR)
5001149 (ED2-96/PL)



Glass
GL-25420 (FULL SERVICE):
ED2-48, -72/PL, -72/PR, -96
GL-25430 (SELF SERVICE):
ED2-72/PL, -72/PR, -96/PL, -96/PR
GL-25586 (SELF SERVICE): ED2-48/P
GL-25785 (FULL SERVICE):
ED2-72, -96/PL, -96/PR
GL-25889 (SELF SERVICE): ED2-72/P

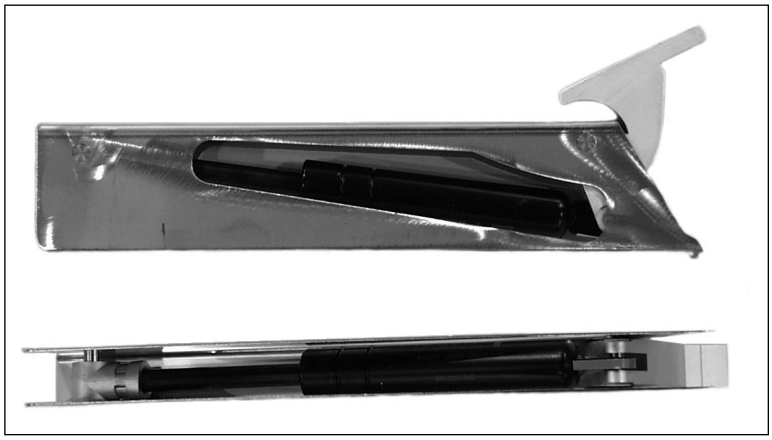
Extrusion Gasket
GS-22547

Pivot Hinge
HG-23669



Glass Clamp
CM-25421

Strut Pack Assembly



Cable Replacement Kits

ED2-48 Series Cable Replacement Kit

Cable Heating Service Kit No. 4880

includes:

CB-3045	Cable Heating Element	134 feet
CR-3226	Ring Connector	4
IN-3488	Insulation Corner	1 foot
BU-3105	Shoulder Bushing	4
BU-3106	Cup Bushing	4
SL-3063	Insulating Sleeve	4
TA-3540	High Temperature Tape	1 roll
ST-2439	Stud, 10/32	4
NU-2215	Hex Nut	8

ED2-72 Series Cable Replacement Kit

Cable Heating Service Kit No. 4881

includes:

CB-3045	Cable Heating Element	210 feet
CR-3226	Ring Connector	12
IN-3488	Insulation Corner	1 foot
BU-3105	Shoulder Bushing	12
BU-3106	Cup Bushing	12
SL-3063	Insulating Sleeve	12
TA-3540	High Temperature Tape	1 roll
ST-2439	Stud, 10/32	12
NU-2215	Hex Nut	24

ED2-96 Series Cable Replacement Kit

Cable Heating Service Kit No. 14228

includes:

CB-3045	Cable Heating Element	280 feet
CR-3226	Ring Connector	8
IN-3488	Insulation Corner	1 foot
BU-3105	Shoulder Bushing	8
BU-3106	Cup Bushing	8
SL-3063	Insulating Sleeve	8
TA-3540	High Temperature Tape	1 roll
ST-2439	Stud, 10/32	8
NU-2215	Hex Nut	16

SAFETY ALERT

CAUTION

This units performance has been optimized using the factory provided bulbs. These bulbs should be replaced with an exact replacement or with a factory recommended replacement. These bulbs have been treated to resist breakage and must be replaced with similarly treated bulbs in order to maintain compliance with NSF standards.

CAUTION

CAUTION

DISCONNECT UNIT FROM POWER SOURCE BEFORE CLEANING OR SERVICING

ED2-48 Series

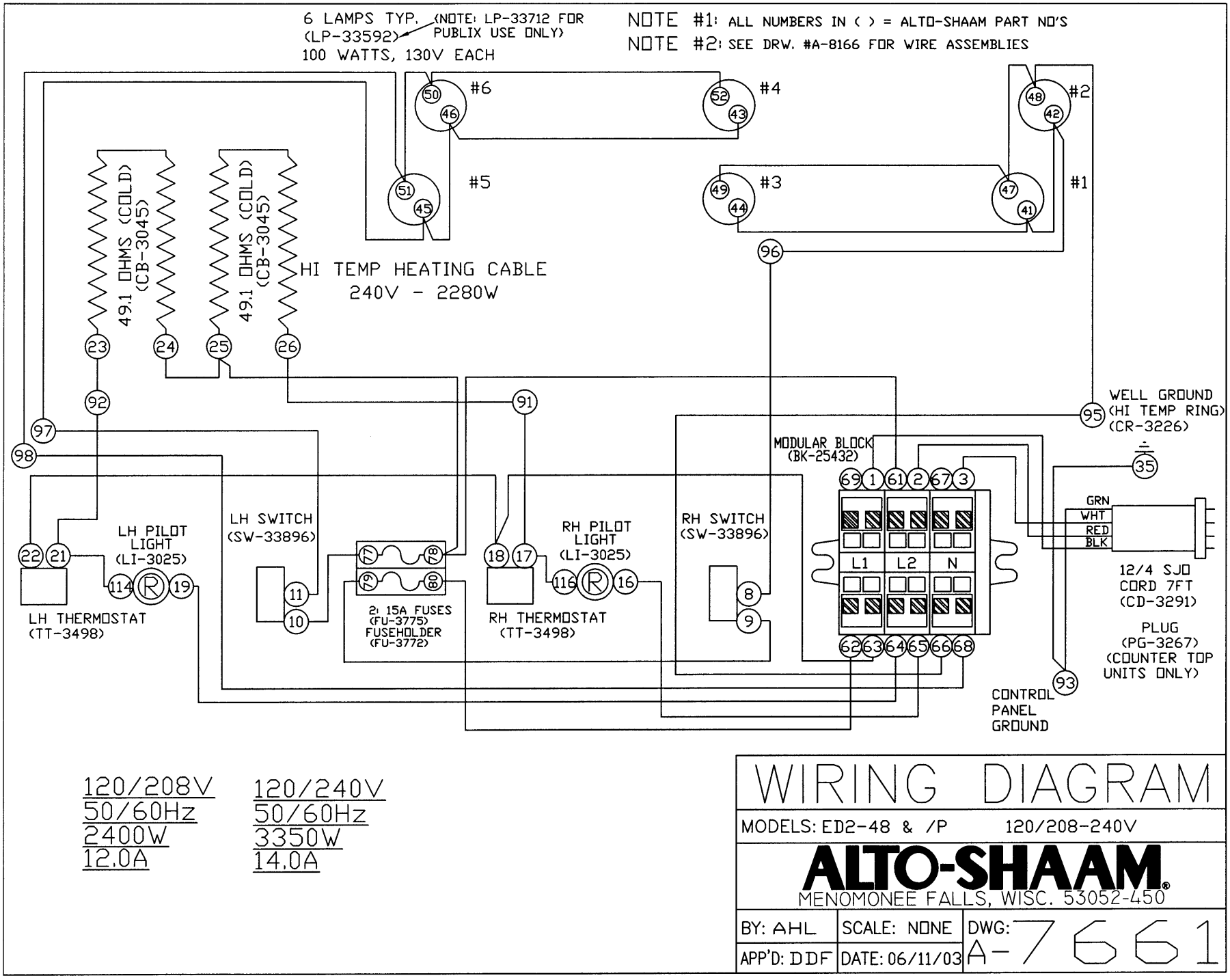
Part Description	Alto-Shaam Part No.	ED2-48	ED2-48/P	ED2SYS-48	ED2SYS-48/P
1. CORD, (120/240V), 7' (2133mm)	CD-3291	1	1	1	1
CORD, (230V), 7' (2133mm)	CD-33490	1	1	1	1
PLUG (COUNTERTOP UNITS, 120/240V ONLY)	PG-3267	1	1	-	-
2. INSULATION 1/2" x 24" x 48" (13mm x 610mm x 1219mm)	IN-2203	2	2	2	2
3. HEATING CABLE, 132' (40234mm)	CB-3045	X	X	X	X
4. THERMOSTAT	TT-3498	2	2	2	2
THERMOSTAT KNOB	KN-3473	2	2	2	2
THERMOSTAT, BEZEL	TT-3713	2	2	2	2
5. INDICATOR LIGHT (120/240V), RED	LI-3025	2	2	2	2
INDICATOR LIGHT (230V), WHITE	LI-3951	2	2	2	2
6. SWITCH, BULB	SW-33896	2	2	2	2
RUBBER BOOT FOR SWITCH, 230V ONLY	SW-3905	2	2	2	2
7. FUSE HOLDER	FU-3772	1	1	-	-
FUSE, 15 AMP	FU-3775	2	2	-	-
8. TERMINAL BLOCK, SYS ONLY	*CONTACT FACTORY*	-	-	*X*	*X*
9. TERMINAL BLOCK, MODULAR	BK-25432	1	1	-	-
10. BULBS (120/240V)	LP-33592	6	6	6	6
BULBS (230V)	LP-3384	6	6	6	6
11. RECEPTACLE, BULB (120/240V)	RP-3952	6	6	6	6
RECEPTACLE, BULB (230V)	RP-3955	6	6	6	6
12. END GLASS GASKET, 7' (2133mm) ED2-48	GS-22547	1	-	1	-
END GLASS GASKET, 3' (914mm) ED2-48/P	GS-22547	-	2	-	2
13. DOOR, GLASS, LEFT HAND	DR-25422	1	1	1	1
DOOR, GLASS, MID or RIGHT HAND	DR-25423	1	1	1	1
14. TRACK, TOP	TK-25417	1	1	1	1
TRACK, BOTTOM	TK-25418	1	1	1	1
15. GLASS, FULL SERVE, W/SILK SCREEN, 48" (1219mm)	GL-25420	1	-	1	-
GLASS, END, CLEAR	GL-25762	2	2	2	2
GLASS, SELF SERVE (ED2-48/P)	GL-25586	-	1	-	1
CLAMP, GLASS	CM-25421	1	1	1	1
LATCH, GLASS, RETAINING	LT-2195	2	2	2	2
HANDLE, GLASS (ED2-48)	1001656	1	-	1	-
FRAME, GLASS, LEFT HAND	5000241	1	1	1	1
FRAME, GLASS, RIGHT HAND	5000242	1	1	1	1
16. HINGE, PIVOT	HG-23669	2	2	2	2
17. CUTTING BOARD ASSEMBLY	4016	1	1	1	1
CUTTING BOARD BRACKET BASE	11283	2	2	2	2
CUTTING BOARD BRACKET	BT-2342	2	2	2	2
18. HEAT GUARD, PASS THRU	GD-25577	-	1	-	1
19. PAN GRID, PASS THRU	PN-25752	-	2	-	2
PAN INSERT, 2" DEEP (51mm)	1000993	-	1	-	1
PAN DIVIDER, LONG SEE PAGES 7, 8, 9					
PAN DIVIDER, SHORT SEE PAGES 7, 8, 9					
20. GAS STRUT, 95#	SU-24021	2	-	2	-
PIN, HINGE ANCHOR	PI-23678	2	-	2	-
PIN, STRUT PIVOT	PI-23679	2	2	2	2
BUSHING, BEARING, NYLON	BU-2827	4	4	4	4
PLUG, WEAR	PG-2899	4	4	4	4
21. LEGS, 4" (102mm)	LG-2044	4	4	4	4
22. EQUIPOTENTIAL STUD (230V)	ST-24173	1	1	1	1

ED2-72 Series

Part Description	Alto-Shaam Part No.	ED2-72	ED2-72/P	ED2-72/PL	ED2-72/PR	ED2SYS-72	ED2SYS-72/P	ED2SYS-72/PL	ED2SYS-72/PR
1. CORD, (120/240V), 7' (2133mm)	CD-3557	1	1	1	1	1	1	1	1
CORD, (230V), 7' (2133mm)	CD-33490	1	1	1	1	1	1	1	1
PLUG (COUNTERTOP UNITS, 120/240V ONLY)	PG-3267	1	1	1	1	-	-	-	-
2. INSULATION 1/2" x 24" x 48" (13mm x 610mm x 1219mm)	IN-2203	2	2	2	2	2	2	2	2
3. HEATING CABLE, 210' (64008mm)	CB-3045	X	X	X	X	X	X	X	X
4. THERMOSTAT	TT-3498	2	2	2	2	2	2	2	2
THERMOSTAT KNOB	KN-3473	2	2	2	2	2	2	2	2
THERMOSTAT, BEZEL	TT-3713	2	2	2	2	2	2	2	2
5. INDICATOR LIGHT (120/208-240V), RED	LI-3027	2	2	2	2	2	2	2	2
INDICATOR LIGHT (230V), WHITE	LI-3951	2	2	2	2	2	2	2	2
6. SWITCH, BULB	SW-33896	2	2	2	2	2	2	2	2
RUBBER BOOT FOR SWITCH, 230V ONLY	SW-3905	2	2	2	2	2	2	2	2
7. FUSE HOLDER	FU-3772	1	1	1	1	-	-	-	-
FUSE, 15 AMP	FU-3775	2	2	2	2	-	-	-	-
8. TERMINAL BLOCK, SYS ONLY	*CONTACT FACTORY*	-	-	-	-	*X*	*X*	*X*	*X*
9. TERMINAL BLOCK, MODULAR	BK-25432	1	1	1	1	-	-	-	-
TERMINAL BLOCK, 120V ONLY	BK-3021	1	1	1	1	-	-	-	-
10. BULBS (120/240V)	LP-33592	10	10	10	10	10	10	10	10
BULBS (230V)	LP-3384	10	10	10	10	10	10	10	10
11. RECEPTACLE, BULB (120/240V)	RP-3952	10	10	10	10	10	10	10	10
RECEPTACLE, BULB (230V)	RP-3955	10	10	10	10	10	10	10	10
12. END GLASS GASKET, 7' (2133mm)	GS-22547	7'	-	7'	7'	7'	-	7'	7'
END GLASS GASKET, 3' (914mm) ED2-72/P	GS-22547	-	3'	-	-	-	3'	-	-
13. DOOR, GLASS, LEFT HAND	DR-25422	1	1	1	1	1	1	1	1
DOOR, GLASS, MID	DR-25423	1	1	1	1	1	1	1	1
DOOR, GLASS, RIGHT HAND	DR-25424	1	1	1	1	1	1	1	1
14. TRACK, TOP	TK-25569	1	1	1	1	1	1	1	1
TRACK, BOTTOM	TK-25792	1	1	1	1	1	1	1	1
15. GLASS, CENTER, DIVIDER, PL/PR	GL-22049	-	-	1	1	-	-	1	1
GLASS, FULL SERVE, W/SILK SCREEN, 72"(1829mm)	GL-25785	1	-	-	-	1	-	-	-
GLASS, SELF-SERVE, 24" (610mm) (72/PL; 72/PR)	GL-25430	-	-	1	1	-	-	1	1
GLASS, END, CLEAR	GL-25762	2	2	2	2	2	2	2	2
GLASS, FULL SERVE (72 PR/PL), 48" (1219mm)	GL-25420	-	-	1	1	-	-	1	1
GLASS, SELF SERVE (72/P)	GL-25889	-	1	-	-	-	1	-	-
CLAMP, GLASS	CM-25789	1	1	1	1	1	1	1	1
LATCH, GLASS, RETAINING	LT-2195	2	2	2	2	2	2	2	2
HANDLE, GLASS, EXTRUSION, 72" (1829mm)	1001657	1	--	-	-	1	-	-	-
HANDLE, GLASS, EXTRUSION	1001656	-	-	1	1	-	-	1	1
FRAME, GLASS, LEFT HAND	5000241	1	1	1	1	1	1	1	1
FRAME, GLASS, RIGHT HAND	5000242	1	1	1	1	1	1	1	1
16. HINGE, PIVOT	HG-23669	2	2	2	2	2	2	2	2
17. CUTTING BOARD ASSEMBLY, 6' (1829mm)	4017	1	1	1	1	1	1	1	1
CUTTING BOARD BRACKET BASE	11283	2	2	2	2	2	2	2	2
CUTTING BOARD BRACKET	BT-2342	2	2	2	2	2	2	2	2
18. HEAT GUARD, PASS THRU UNITS	GD-25899	-	1	-	-	-	1	-	-
	GD-24852	-	-	1	1	-	-	1	1
19. PAN GRID, PASS THRU	PN-25752	-	3	1	1	-	3	1	1
PAN INSERT, 2" DEEP (51mm)	1000735	-	1	-	-	-	1	-	-
PAN INSERT	1000521	-	-	1	1	-	-	1	1
PAN INSERT, 4" DEEP (102mm)	1001991	-	1	-	-	-	1	-	-
PAN DIVIDER, LONG SEE PAGES 7, 8, 9									
PAN DIVIDER, SHORT SEE PAGES 7, 8, 9									
20. GAS STRUT, 50# (SELF-SERVE GLASS)	SU-22431	-	2	1	1	-	2	1	1
GAS STRUT, 140#	SU-22702	2	-	1	1	2	-	1	1
PIN, HINGE, ANCHOR	PI-23678	1	4	4	4	1	4	4	4
PIN, STRUT PIVOT	PI-23679	2	2	2	2	2	2	2	2
BUSHING, BEARING, NYLON	BU-2827	4	4	4	4	4	4	4	4
PLUG, WEAR	PG-2899	4	4	4	4	4	4	4	4
21. LEGS, 4" (102mm)	LG-2044	4	4	4	4	-	-	-	-
22. EQUIPOTENTIAL STUD (230V)	ST-24173	1	1	1	1	1	1	1	1

ED2-96 Series

Part Description	Alto-Shaam Part No.	ED2-96	ED2-96/PL	ED2-96/PR	ED2SYS-96	ED2SYS-96/PL	ED2SYS-96/PR
1. CORD, (120/240V), 7' (2134mm)	CD-3557	1	1	1	1	1	1
CORD, (230V), 7' (2134mm)	CD-33489	1	1	1	1	1	1
PLUG (COUNTERTOP UNITS (120/240V ONLY)	PG-3267	1	1	1	-	-	-
2. INSULATION 1/2" x 24" x 48" (13mm x 610mm x 1219mm)	IN-2203	3	3	3	3	3	3
3. HEATING CABLE, 277.5' (84572mm)	CB-3045	X	X	X	X	X	X
4. THERMOSTAT	TT-3498	3	3	3	3	3	3
THERMOSTAT KNOB	KN-3473	3	3	3	3	3	3
THERMOSTAT, BEZEL	TT-3713	3	3	3	3	3	3
5. INDICATOR LIGHT, (110V), RED	LI-3027	3	3	3	3	3	3
INDICATOR LIGHT (230V), WHITE	LI-3951	3	3	3	3	3	3
6. SWITCH, BULB	SW-33896	3	3	3	3	3	3
RUBBER BOOT FOR SWITCH, 230V ONLY	SW-3905	3	3	3	3	3	3
7. FUSE HOLDER	FU-3772	1	1	1	-	-	-
FUSE, 15 AMP	FU-3775	2	2	2	-	-	-
8. TERMINAL BLOCK, MODULAR	BK-25432	1	1	1	-	-	-
TERMINAL BLOCK	BK-3021	1	1	1	-	-	-
9. TERMINAL BLOCK, SYS ONLY	*CONTACT FACTORY*	-	-	-	*X*	*X*	*X*
10. BULBS (120/240V)	LP-33592	14	14	14	14	14	14
BULBS (230V)	LP-3384	14	14	14	14	14	14
11. RECEPTACLE, BULB (120/240V)	RP-3952	14	14	14	14	14	14
RECEPTACLE, BULB (230V)	RP-3955	14	14	14	14	14	14
12. GLASS END, GASKET, 7' (2134 mm)	GS-22547	7'	7'	7'	7'	7'	7'
13. DOOR, GLASS, LEFT HAND	DR-25422	1	1	1	1	1	1
DOOR, GLASS, MID	DR-25423	2	2	2	2	2	2
DOOR, GLASS, RIGHT HAND	DR-25424	1	1	1	1	1	1
14. TRACK, TOP	TK-25791	1	1	1	1	1	
TRACK, BOTTOM	TK-25793	1	1	1	1	1	1
15. GLASS, CENTER, DIVIDER, PASS THRU UNITS	GL-22049	-	1	1	-	1	1
GLASS, FULL SERVE,W/SILK SCREEN, 48" (1219mm)	GL-25420	2	-	-	2	-	-
GLASS, SELF-SERVE, 24" (610mm)	GL-25430	-	1	1	-	1	1
GLASS, END, CLEAR	GL-25762	2	2	2	2	2	2
GLASS, FULL SERVE (PR/PL)	GL-25785	-	1	1	-	1	1
CLAMP, GLASS	CM-25790	1	1	1	1	1	1
LATCH, GLASS, RETAINING	LT-2195	2	2	2	2	2	2
HANDLE, GLASS, EXTRUSION	1001658	1	-	-	1	-	-
HANDLE, GLASS EXTRUSION (PL/PR)	1001657	-	1	1	-	1	1
FRAME, GLASS, LEFT HAND	5000241	1	1	1	1	1	1
FRAME, GLASS, RIGHT HAND	5000242	1	1	1	1	1	1
16. HINGE, PIVOT	HG-23669	2	2	2	2	2	2
17. CUTTING BOARD ASSEMBLY, 4' (1219mm)	4016	2	2	2	2	2	2
CUTTING BOARD BRACKET BASE	11283	4	4	4	4	4	4
CUTTING BOARD BRACKET	BT-2342	4	4	4	4	4	4
18. HEAT GUARD, PASS THRU UNITS	GD-24852	-	1	1	-	1	1
19. PAN GRID	PN-25752	-	1	1	-	1	1
PAN INSERT, 2" DEEP (51mm) (PL/PR)	1000521	-	1	1	-	1	1
PAN DIVIDER, LONG SEE PAGES 7, 8, 9							
PAN DIVIDER, SHORT SEE PAGES 7, 8, 9							
20. GAS STRUT, 50# (SELF-SERVE GLASS)	SU-22431	-	1	1	-	1	1
GAS STRUT, 195#	SU-22704	2	1	1	2	1	1
PIN, HINGE, ANCHOR	PI-23678	4	4	4	4	4	4
PIN, STRUT PIVOT	PI-23679	2	2	2	2	2	2
BUSHING, BEARING, NYLON	BU-2827	4	4	4	4	4	4
PLUG, WEAR	PG-2899	4	4	4	4	4	4
21. LEGS, 4" (102mm)	LG-2044	6	6	6	-	-	-
22. EQUIPOTENTIAL STUD (230V)	ST-24173	1	1	1	1	1	1



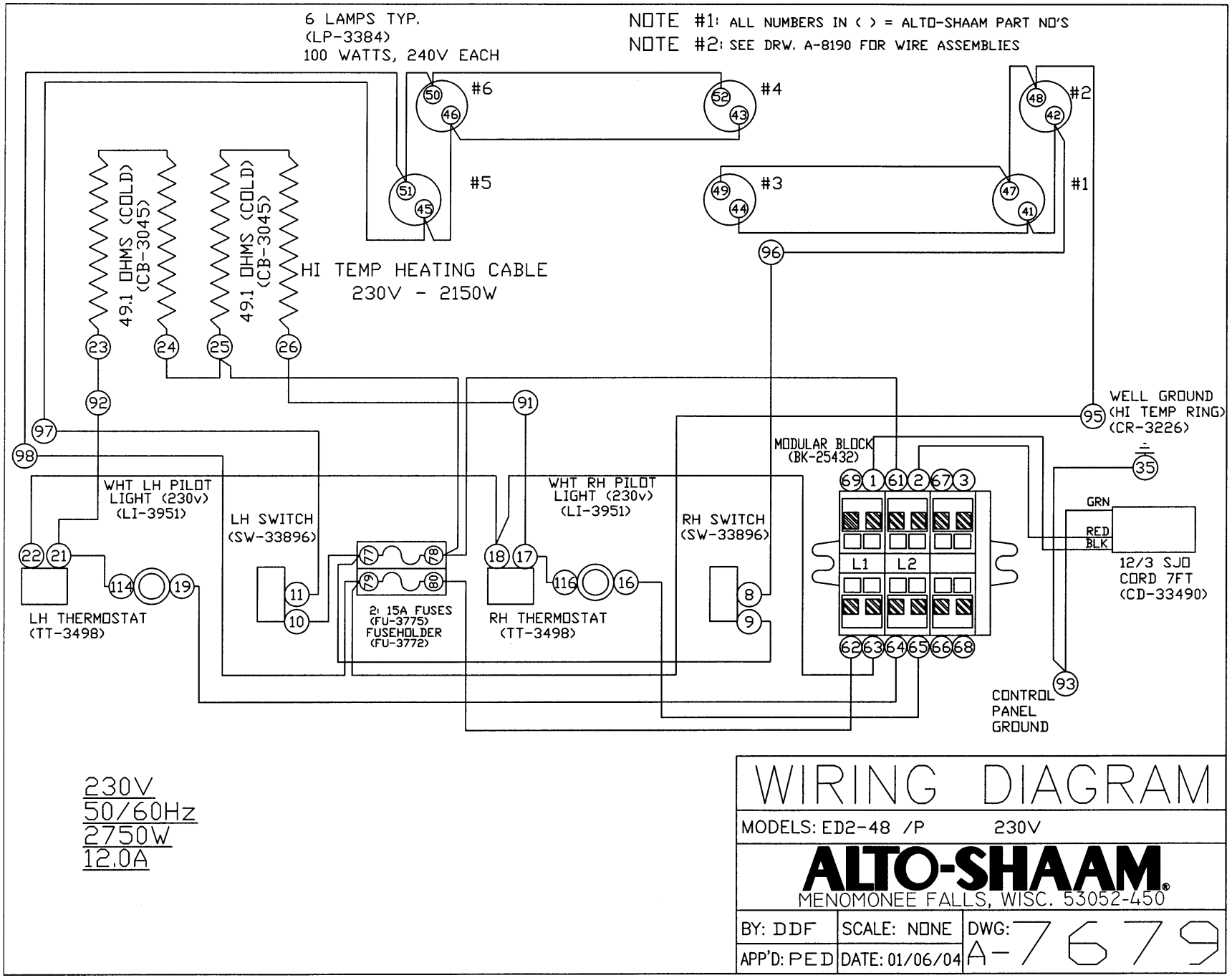
WIRING DIAGRAM

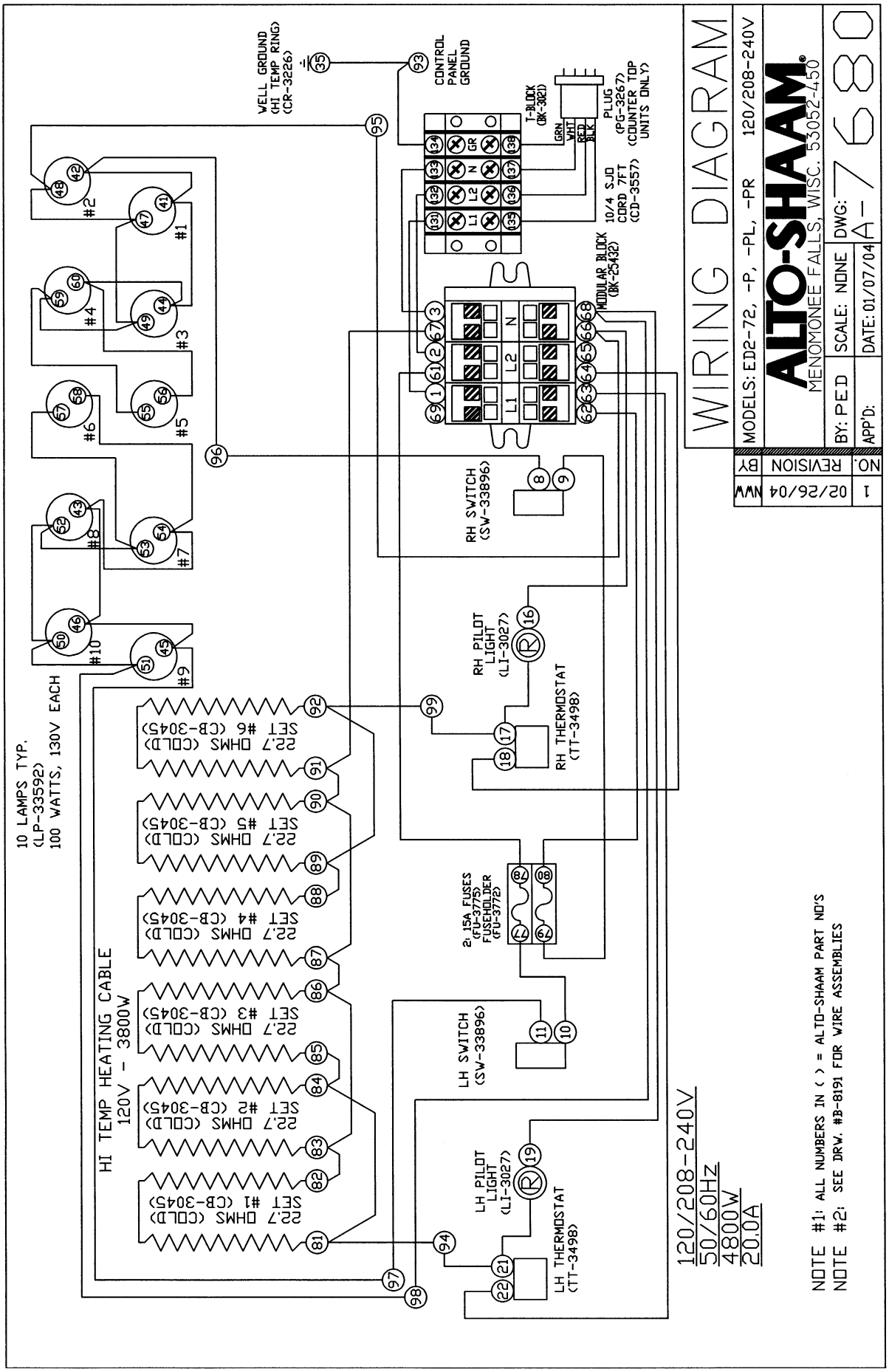
MODELS: ED2-48 & /P 120/208-240V

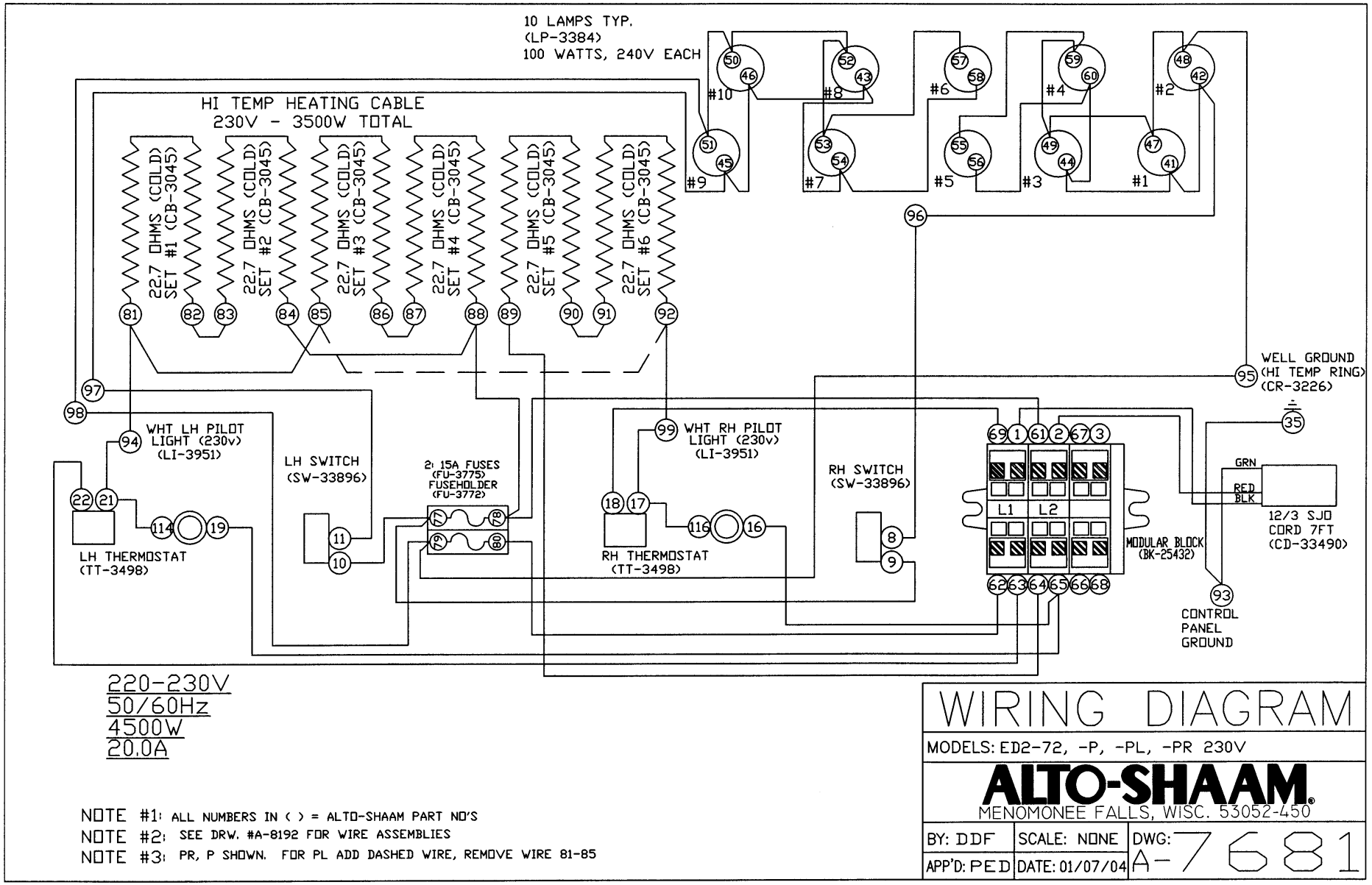
ALTO-SHAAM

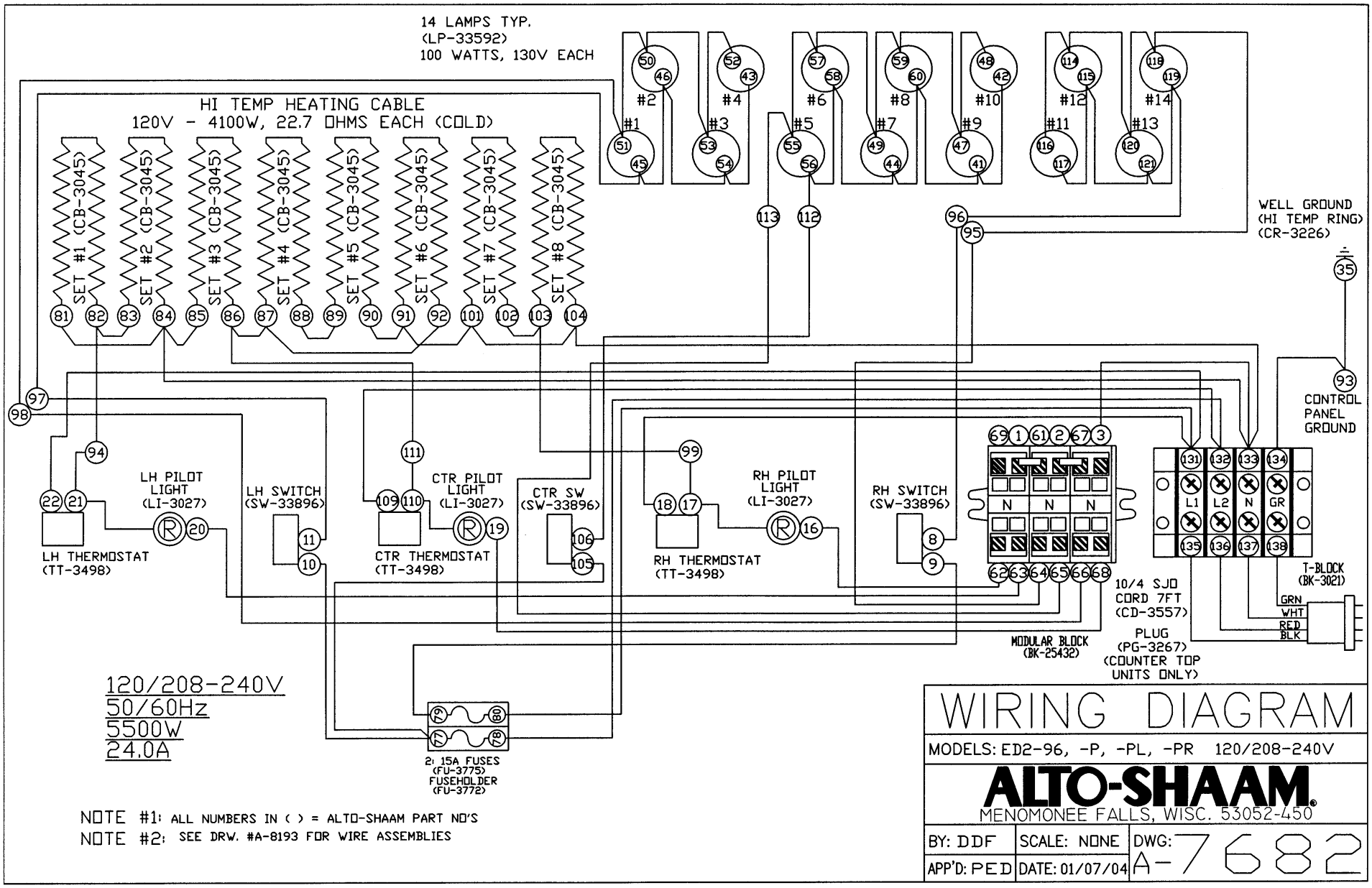
MENOMONEE FALLS, WISC. 53052-450

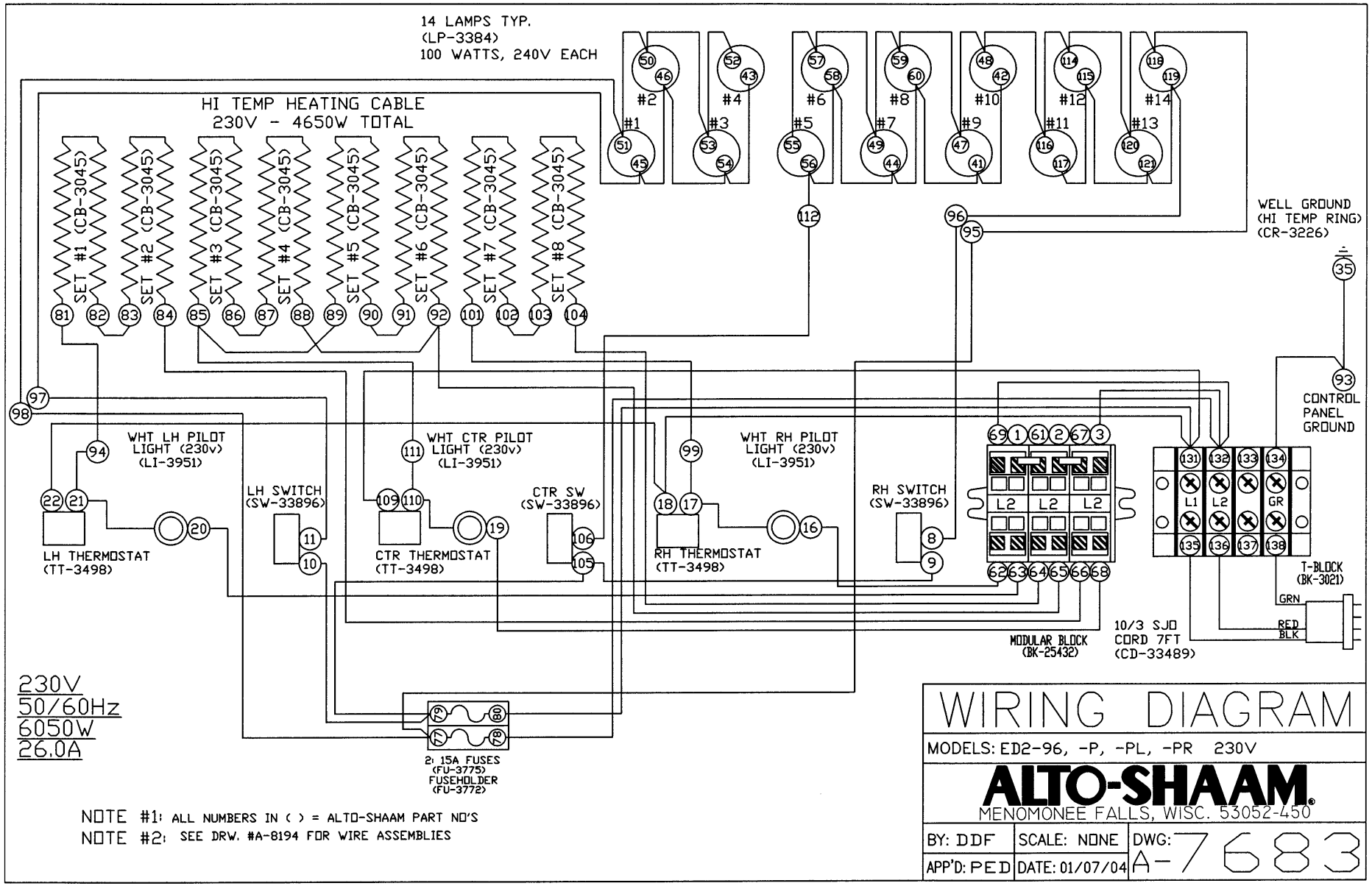
BY: AHL	SCALE: NONE	DWG: A-7661
APP'D: DDF	DATE: 06/11/03	

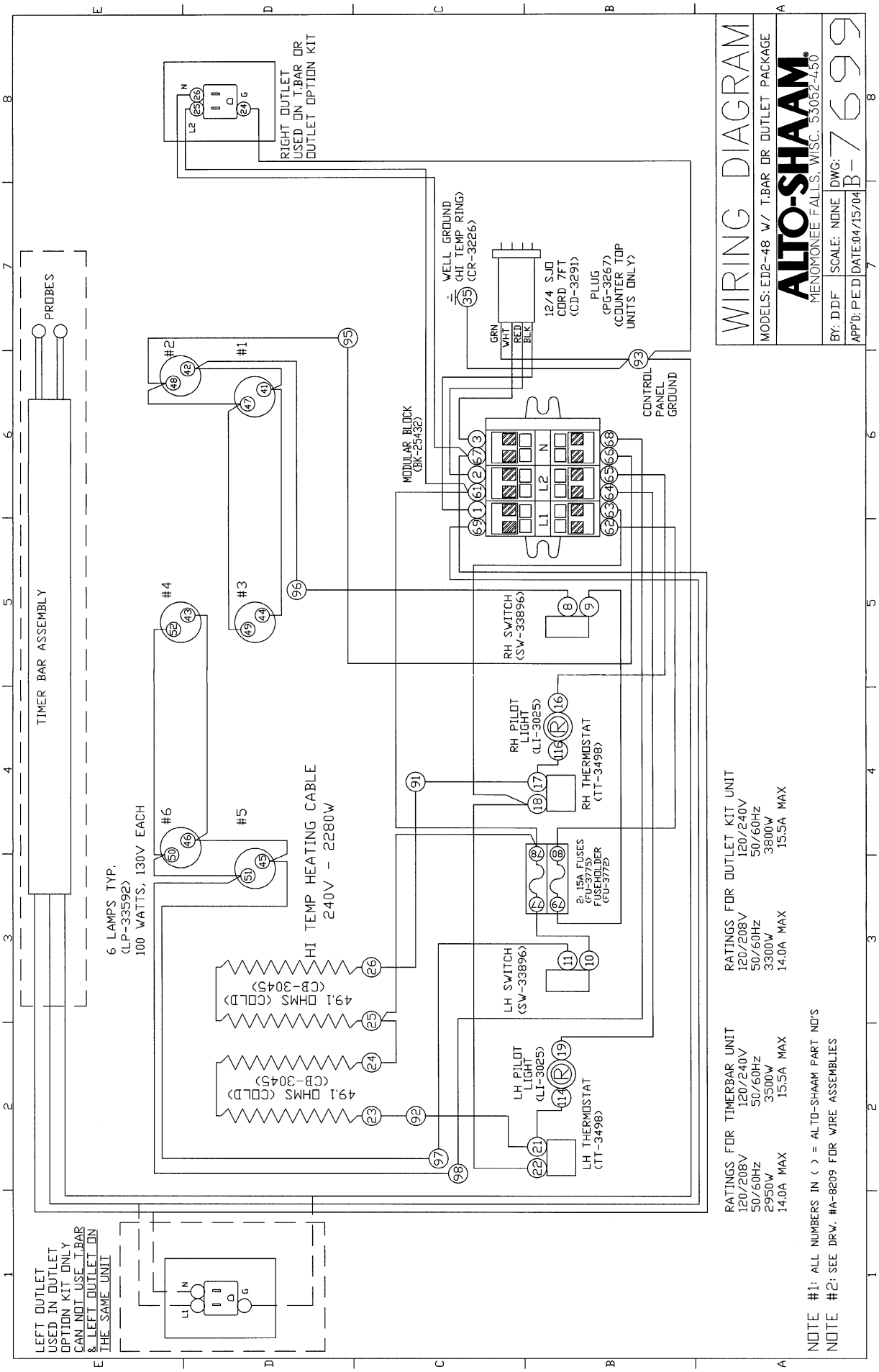

6 LAMPS TYP.
(LP-3384)
100 WATTS, 240V EACH
NOTE #1: ALL NUMBERS IN ( ) = ALTO-SHAAM PART NO'S
NOTE #2: SEE DRW. A-8190 FOR WIRE ASSEMBLIES
#6
#4
#2
#5
#3
#1
49.1 OHMS (COLD)
(CB-3045)
49.1 OHMS (COLD)
(CB-3045)
HI TEMP HEATING CABLE
230V - 2150W
WELL GROUND
(HI TEMP RING)
(CR-3226)
MODULAR BLOCK
(BK-25432)
WHT LH PILOT
LIGHT (230v)
(LI-3951)
LH SWITCH
(SW-33896)
WHT RH PILOT
LIGHT (230v)
(LI-3951)
RH SWITCH
(SW-33896)
L1
L2
GRN
RED
BLK
12/3 SJO
CORD 7FT
(CD-33490)
LH THERMOSTAT
(TT-3498)
2: 15A FUSES
(FU-3775)
FUSEHOLDER
(FU-3772)
RH THERMOSTAT
(TT-3498)
CONTROL
PANEL
GROUND
230V
50/60Hz
2750W
12.0A
WIRING DIAGRAM
MODELS: ED2-48 /P 230V
ALTO-SHAAM
MENOMONEE FALLS, WISC. 53052-450
BY: DDF
SCALE: NONE
DWG: A-7679
APP'D: PED
DATE: 01/06/04

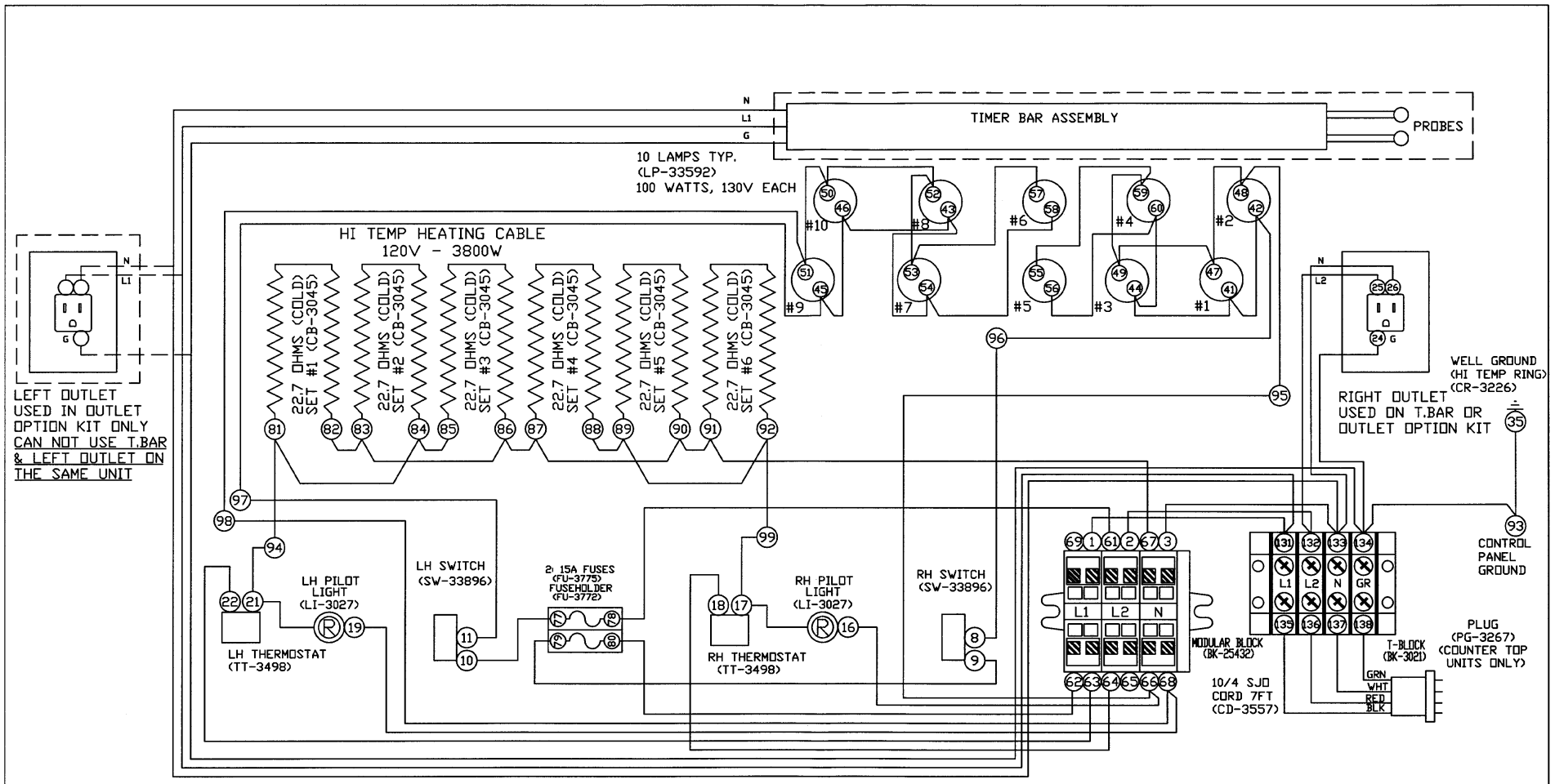

WIRING DIAGRAM
MODELS: ED2-72, -P, -PL, -PR 120/208-240V
ALTO-SHAAM
MENOMONEE FALLS, WISC. 53052-450
BY: PED
SCALE: NONE
DWG: A-7680
APP'D:
DATE: 01/07/04
NO. REVISION BY
1 02/26/04 MW
WELL GROUND (HI TEMP RING) (CR-3226)
CONTROL PANEL GROUND
T-BLOCK (BK-3021)
PLUG (PG-3267) (COUNTER TOP UNITS ONLY)
10/4 SJO CORD 7FT (CD-3557)
MODULAR BLOCK (BK-2532)
RH SWITCH (SW-33896)
RH PILOT LIGHT (LI-3027)
RH THERMOSTAT (TT-3498)
2, 15A FUSES (FU-3775) FUSEHOLDER (FU-3772)
LH SWITCH (SW-33896)
LH PILOT LIGHT (LI-3027)
LH THERMOSTAT (TT-3498)
10 LAMPS TYP. (LP-33592) 100 WATTS, 130V EACH
HI TEMP HEATING CABLE 120V - 3800W
SET #1 (CB-3045) 22.7 OHMS (COLD)
SET #2 (CB-3045) 22.7 OHMS (COLD)
SET #3 (CB-3045) 22.7 OHMS (COLD)
SET #4 (CB-3045) 22.7 OHMS (COLD)
SET #5 (CB-3045) 22.7 OHMS (COLD)
SET #6 (CB-3045) 22.7 OHMS (COLD)
#1
#2
#3
#4
#5
#6
#7
#8
#9
#10
120/208-240V
50/60Hz
4800W
20.0A
NOTE #1: ALL NUMBERS IN ( ) = ALTO-SHAAM PART NO'S
NOTE #2: SEE DRW. #B-8191 FOR WIRE ASSEMBLIES


10 LAMPS TYP.
(LP-3384)
100 WATTS, 240V EACH
HI TEMP HEATING CABLE
230V - 3500W TOTAL
22.7 OHMS (COLD) SET #1 (CB-3045)
22.7 OHMS (COLD) SET #2 (CB-3045)
22.7 OHMS (COLD) SET #3 (CB-3045)
22.7 OHMS (COLD) SET #4 (CB-3045)
22.7 OHMS (COLD) SET #5 (CB-3045)
22.7 OHMS (COLD) SET #6 (CB-3045)
#10
#8
#6
#4
#2
#9
#7
#5
#3
#1
WELL GROUND (HI TEMP RING) (CR-3226)
WHT LH PILOT LIGHT (230v) (LI-3951)
LH SWITCH (SW-33896)
2, 15A FUSES (FU-3775) FUSEHOLDER (FU-3772)
WHT RH PILOT LIGHT (230v) (LI-3951)
RH SWITCH (SW-33896)
L1
L2
MODULAR BLOCK (BK-25432)
GRN
RED
BLK
12/3 SJO CORD 7FT (CD-33490)
LH THERMOSTAT (TT-3498)
RH THERMOSTAT (TT-3498)
CONTROL PANEL GROUND
220-230V
50/60Hz
4500W
20.0A
NOTE #1: ALL NUMBERS IN ( ) = ALTO-SHAAM PART NO'S
NOTE #2: SEE DRW. #A-8192 FOR WIRE ASSEMBLIES
NOTE #3: PR, P SHOWN. FOR PL ADD DASHED WIRE, REMOVE WIRE 81-85
WIRING DIAGRAM
MODELS: ED2-72, -P, -PL, -PR 230V
ALTO-SHAAM
MENOMONEE FALLS, WISC. 53052-450
BY: DDF
SCALE: NONE
DWG: A-7681
APP'D: PED
DATE: 01/07/04


14 LAMPS TYP.
(LP-33592)
100 WATTS, 130V EACH
HI TEMP HEATING CABLE
120V - 4100W, 22.7 OHMS EACH (COLD)
SET #1 (CB-3045)
SET #2 (CB-3045)
SET #3 (CB-3045)
SET #4 (CB-3045)
SET #5 (CB-3045)
SET #6 (CB-3045)
SET #7 (CB-3045)
SET #8 (CB-3045)
WELL GROUND
(HI TEMP RING)
(CR-3226)
CONTROL
PANEL
GROUND
LH PILOT
LIGHT
(LI-3027)
LH SWITCH
(SW-33896)
LH THERMOSTAT
(TT-3498)
CTR PILOT
LIGHT
(LI-3027)
CTR SW
(SW-33896)
CTR THERMOSTAT
(TT-3498)
RH PILOT
LIGHT
(LI-3027)
RH SWITCH
(SW-33896)
RH THERMOSTAT
(TT-3498)
MODULAR BLOCK
(BK-25432)
10/4 SJO
CORD 7FT
(CD-3557)
PLUG
(PG-3267)
(COUNTER TOP
UNITS ONLY)
T-BLOCK
(BK-3021)
GRN
WHT
RED
BLK
L1
L2
N
GR
120/208-240V
50/60Hz
5500W
24.0A
2: 15A FUSES
(FU-3775)
FUSEHOLDER
(FU-3772)
NOTE #1: ALL NUMBERS IN ( ) = ALTO-SHAAM PART NO'S
NOTE #2: SEE DRW. #A-8193 FOR WIRE ASSEMBLIES
WIRING DIAGRAM
MODELS: ED2-96, -P, -PL, -PR 120/208-240V
ALTO-SHAAM
MENOMONEE FALLS, WISC. 53052-450
BY: DDF
SCALE: NONE
DWG: A-7682
APP'D: PED
DATE: 01/07/04


14 LAMPS TYP.
(LP-3384)
100 WATTS, 240V EACH
HI TEMP HEATING CABLE
230V - 4650W TOTAL
SET #1 (CB-3045)
SET #2 (CB-3045)
SET #3 (CB-3045)
SET #4 (CB-3045)
SET #5 (CB-3045)
SET #6 (CB-3045)
SET #7 (CB-3045)
SET #8 (CB-3045)
#1
#2
#3
#4
#5
#6
#7
#8
#9
#10
#11
#12
#13
#14
WELL GROUND
(HI TEMP RING)
(CR-3226)
CONTROL
PANEL
GROUND
WHT LH PILOT
LIGHT (230v)
(LI-3951)
WHT CTR PILOT
LIGHT (230v)
(LI-3951)
WHT RH PILOT
LIGHT (230v)
(LI-3951)
LH SWITCH
(SW-33896)
CTR SW
(SW-33896)
RH SWITCH
(SW-33896)
LH THERMOSTAT
(TT-3498)
CTR THERMOSTAT
(TT-3498)
RH THERMOSTAT
(TT-3498)
L2
L1
GR
T-BLOCK
(BK-3021)
GRN
RED
BLK
MODULAR BLOCK
(BK-25432)
10/3 SJO
CORD 7FT
(CD-33489)
2: 15A FUSES
(FU-3775)
FUSEHOLDER
(FU-3772)
230V
50/60Hz
6050W
26.0A
NOTE #1: ALL NUMBERS IN ( ) = ALTO-SHAAM PART NO'S
NOTE #2: SEE DRW. #A-8194 FOR WIRE ASSEMBLIES
WIRING DIAGRAM
MODELS: ED2-96, -P, -PL, -PR 230V
ALTO-SHAAM
MENOMONEE FALLS, WISC. 53052-450
BY: DDF
SCALE: NONE
DWG: A-7683
APP'D: PED
DATE: 01/07/04


WIRING DIAGRAM
MODELS: ED2-48 w/ T.BAR OR OUTLET PACKAGE
ALTO-SHAAM
MENOMONEE FALLS, WISC. 53052-450
BY: DDF
SCALE: NONE
DWG: B-769
APP'D: PED
DATE: 04/15/04
TIMER BAR ASSEMBLY
PROBES
6 LAMPS TYP.
(LP-33592)
100 WATTS, 130V EACH
HI TEMP HEATING CABLE
240V - 2280W
49.1 OHMS (COLD)
(CB-3045)
49.1 OHMS (COLD)
(CB-3045)
MODULAR BLOCK
(BK-25432)
WELL GROUND
(HI TEMP RING)
(CR-3226)
12/4 SJO
CORD 7FT
(CD-3291)
PLUG
(PG-3267)
(COUNTER TOP
UNITS ONLY)
GRN
WHT
RED
BLK
CONTROL
PANEL
GROUND
RH SWITCH
(SW-33896)
RH PILOT
LIGHT
(LI-3025)
RH THERMOSTAT
(TT-3498)
LH SWITCH
(SW-33896)
LH PILOT
LIGHT
(LI-3025)
LH THERMOSTAT
(TT-3498)
2.15A FUSES
(FU-3775)
FUSEHOLDER
(FU-3772)
RIGHT OUTLET
USED ON T.BAR OR
OUTLET OPTION KIT
LEFT OUTLET
USED IN OUTLET
OPTION KIT ONLY
CAN NOT USE T.BAR
& LEFT OUTLET ON
THE SAME UNIT
RATINGS FOR TIMERBAR UNIT
120/208V 120/240V
50/60Hz 50/60Hz
2950W 3500W
14.0A MAX 15.5A MAX
RATINGS FOR OUTLET KIT UNIT
120/208V 120/240V
50/60Hz 50/60Hz
3300W 3800W
14.0A MAX 15.5A MAX
NOTE #1: ALL NUMBERS IN ( ) = ALTO-SHAAM PART NO'S
NOTE #2: SEE DRW. #A-8209 FOR WIRE ASSEMBLIES



RATINGS FOR TIMER BAR UNIT
120/208-240V
50/60Hz
5200W
23.5A MAX

RATINGS FOR OUTLET PACKAGE
120/208-240V
50/60Hz
5600W
23.5A MAX

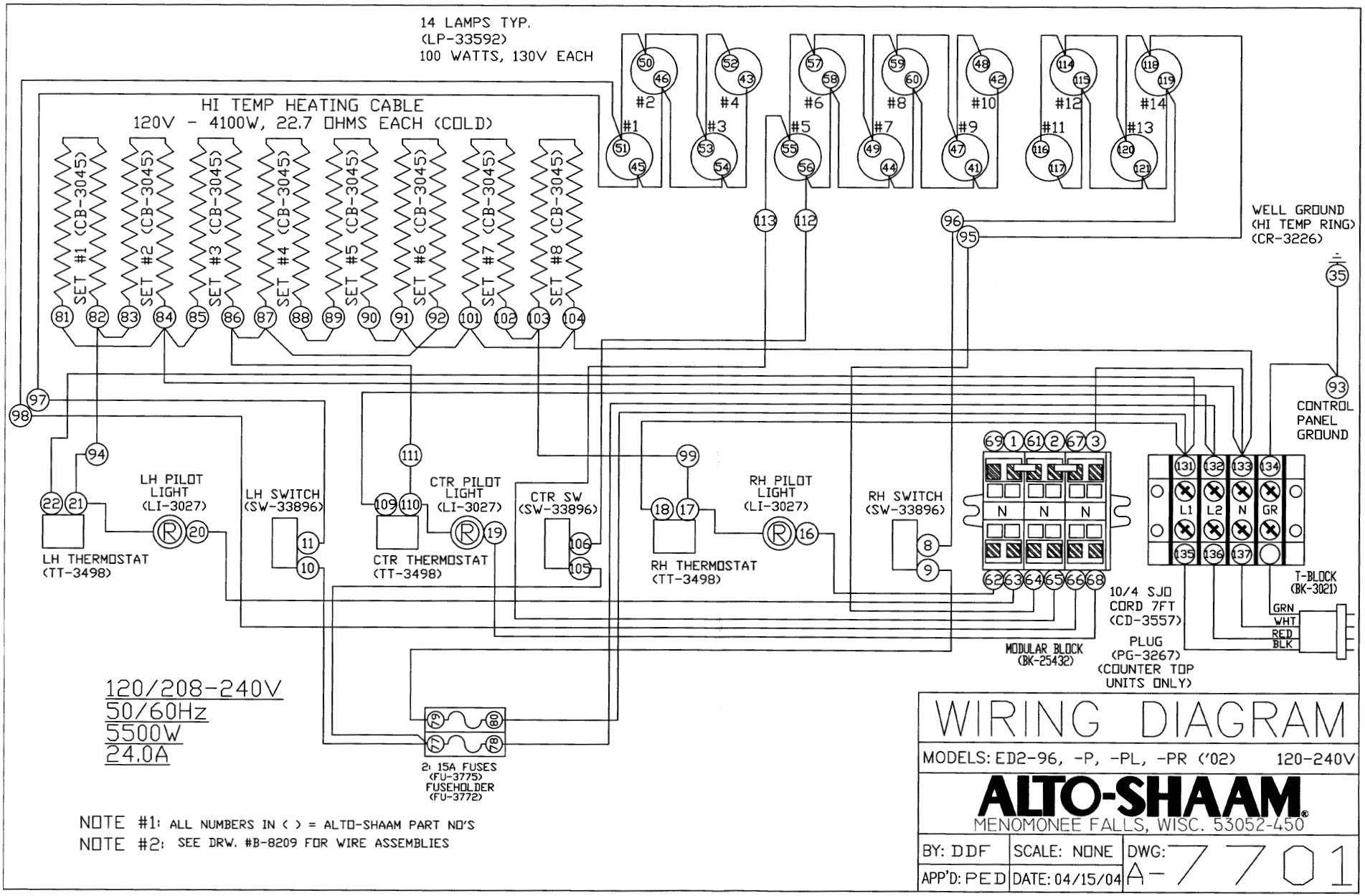
NOTE #1: ALL NUMBERS IN ( ) = ALTO-SHAAM PART NO'S
NOTE #2: SEE DRW. #A-8209 FOR WIRE ASSEMBLIES

WIRING DIAGRAM

MODELS: ED2-72 W/ T. BAR OR OUTLET PKG.

ALTO-SHAAM
MENOMONEE FALLS, WISC. 53052-450

BY: DDF	SCALE: NONE	DWG: A-7700
APP'D: PED	DATE: 04/15/04	


14 LAMPS TYP.
(LP-33592)
100 WATTS, 130V EACH
HI TEMP HEATING CABLE
120V - 4100W, 22.7 OHMS EACH (COLD)
SET #1 (CB-3045)
SET #2 (CB-3045)
SET #3 (CB-3045)
SET #4 (CB-3045)
SET #5 (CB-3045)
SET #6 (CB-3045)
SET #7 (CB-3045)
SET #8 (CB-3045)
#1
#2
#3
#4
#5
#6
#7
#8
#9
#10
#11
#12
#13
#14
WELL GROUND
(HI TEMP RING)
(CR-3226)
CONTROL
PANEL
GROUND
LH PILOT
LIGHT
(LI-3027)
LH SWITCH
(SW-33896)
LH THERMOSTAT
(TT-3498)
CTR PILOT
LIGHT
(LI-3027)
CTR SW
(SW-33896)
CTR THERMOSTAT
(TT-3498)
RH PILOT
LIGHT
(LI-3027)
RH SWITCH
(SW-33896)
RH THERMOSTAT
(TT-3498)
N
N
N
L1
L2
N
GR
T-BLOCK
(BK-3021)
GRN
WHT
RED
BLK
10/4 SJO
CORD 7FT
(CD-3557)
PLUG
(PG-3267)
(COUNTER TOP
UNITS ONLY)
MODULAR BLOCK
(BK-25432)
120/208-240V
50/60Hz
5500W
24.0A
2: 15A FUSES
(FU-3775)
FUSEHOLDER
(FU-3772)
NOTE #1: ALL NUMBERS IN ( ) = ALTO-SHAAM PART NO'S
NOTE #2: SEE DRW. #B-8209 FOR WIRE ASSEMBLIES
WIRING DIAGRAM
MODELS: ED2-96, -P, -PL, -PR ('02) 120-240V
ALTO-SHAAM
MENOMONEE FALLS, WISC. 53052-450
BY: DDF
SCALE: NONE
DWG: A-7701
APP'D: PED
DATE: 04/15/04

TRANSPORTATION DAMAGE and CLAIMS

All Alto-Shaam equipment is sold F.O.B. shipping point, and when accepted by the carrier, such shipments become the property of the consignee.

Should damage occur in shipment, it is a matter between the carrier and the consignee. In such cases, the carrier is assumed to be responsible for the safe delivery of the merchandise, unless negligence can be established on the part of the shipper.

1. Make an immediate inspection while the equipment is still in the truck or immediately after it is moved to the receiving area. Do not wait until after the material is moved to a storage area.
2. Do not sign a delivery receipt or a freight bill until you have made a proper count and inspection of all merchandise received.
3. Note all damage to packages directly on the carrier's delivery receipt.
4. Make certain the driver signs this receipt. If he refuses to sign, make a notation of this refusal on the receipt.
5. If the driver refuses to allow inspection, write the following on the delivery receipt:

   Driver refuses to allow inspection of containers for visible damage.

6. Telephone the carrier's office immediately upon finding damage and request an inspection. Mail a written confirmation of the time, date, and the person called.
7. Save any packages and packing material for further inspection by the carrier.
8. Promptly file a written claim with the carrier and attach copies of all supporting paperwork.

We will continue our policy of assisting our customers in collecting claims which have been properly filed and actively pursued. We cannot, however, file any damage claims for you, assume the responsibility of any claims, nor accept deductions in payment for such claims.

ALTO-SHAAM LIMITED WARRANTY

Alto-Shaam, Inc. warrants to the original purchaser that any original part that is found to be defective in material or workmanship will, at our option, subject to provisions hereinafter stated, be replaced with a new or rebuilt part.

The labor warranty remains in effect one (1) year from installation or fifteen (15) months from the shipping date, whichever occurs first.

The parts warranty remains in effect one (1) year from installation or fifteen (15) months from the shipping date, whichever occurs first.

Exceptions to the one year part warranty period are as listed:

A. Halo Heat cook/hold ovens include a five (5) year parts warranty on the heating element. Labor will be covered under the terms of the standard warranty period of one (1) year or fifteen (15) months.

B. Alto-Shaam Quickchillers include a five (5) year parts warranty on the refrigeration compressor. Labor will be covered under the terms of the standard warranty period of one (1) year or fifteen (15) months.

This warranty does not apply to:

1. Calibration.
2. Replacement of light bulbs and/or the replacement of display case glass due to damage of any kind.
3. Equipment damage caused by accident, shipping, improper installation or alteration.
4. Equipment used under conditions of abuse, misuse, carelessness or abnormal conditions.
5. Any losses or damage resulting from malfunction, including loss of product or consequential or incidental damages of any kind.
6. Equipment modified in any manner from original model, substitution of parts other than factory authorized parts, removal of any parts including legs, or addition of any parts.

This warranty is exclusive and is in lieu of all other warranties, expressed or implied, including the implied warranties of merchantability and fitness for purpose. In no event shall the Company be liable for loss of use, loss of revenue, or loss of product or profit, or for indirect or consequential damages. This warranty is in lieu of all other warranties expressed or implied and Alto-Shaam, Inc. neither assumes or authorizes any persons to assume for it any other obligation or liability in connection with Alto-Shaam equipment.

ALTO-SHAAM, INC.

Warranty effective January 1, 2000

RECORD THE MODEL AND SERIAL NUMBER OF THE UNIT FOR EASY REFERENCE.
ALWAYS REFER TO BOTH MODEL AND SERIAL NUMBER IN ANY CONTACT WITH ALTO-SHAAM REGARDING THE UNIT.

Model Number: _____ Date Installed: _____

Voltage: _____ Purchased From: _____

Serial Number: _____ _____

W164 N9221 Water Street • P.O. Box 450 • Menomonee Falls, Wisconsin 53052-0450 • U.S.A.

PHONE: 262.251.3800
800.558.8744 U.S.A./CANADA

FAX: 262.251.7067 • 800.329.8744 U.S.A./CANADA
262.251.1907 INTERNATIONAL

WEBSITE: www.alto-shaam.com